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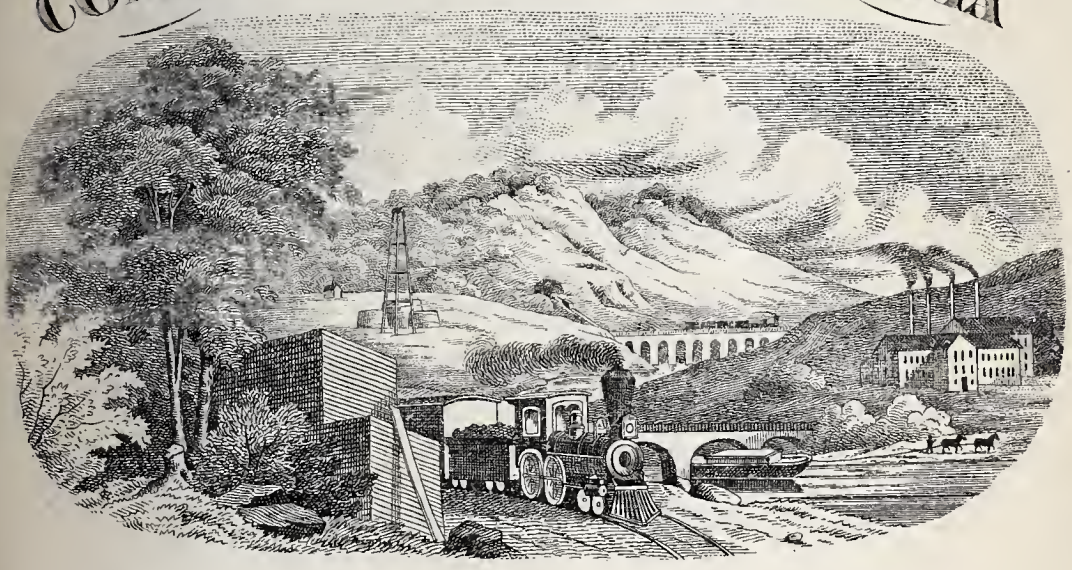
ANNUAL REPORT

OF THE

Secretary of Internal Affairs

OF THE

COMMONWEALTH OF PENNSYLVANIA



PART III.

INDUSTRIAL STATISTICS.

VOL. XIII

1885.

HARRISBURG
E. K. MEYERS,
STATE PRINTER.
1886.

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REPORT

OF THE

BUREAU OF INDUSTRIAL STATISTICS.

COMMUNICATION.

DEPARTMENT OF INTERNAL AFFAIRS,
HARRISBURG, *June 1, 1886.*

To His Excellency ROBERT E. PATTISON,
Governor of Pennsylvania:

In compliance with the requirements of the Constitution, I have the honor to present you herewith, for transmission to the General Assembly, a report of this Department, Part III, Industrial Statistics, Volume XIII, 1885.

I am, very respectfully,
Your obedient servant,
J. SIMPSON AFRICA,
Secretary of Internal Affairs.

182916

It was the intention of the Chief of the Bureau of Statistics, acting under the advice of the Secretary of Internal Affairs, to cause to be published seven thousand five hundred copies of the report of the Bureau of Industrial Statistics, each report to include the reports of the Inspectors of Anthracite Mines. By the decision of the Superintendent of Public Printing, the number of reports of the Bureau was limited to four thousand five hundred copies, and the Anthracite Mine Inspectors' Reports, three thousand copies, were to be published separately, as heretofore. They are included in the report of the Bureau as statistical matter only. The accompanying correspondence between Honorable J. Simpson Africa, Secretary of Internal Affairs, and W. Hayes Grier, Esq., Superintendent of Public Printing, will more fully explain the reasons for the publication of the two reports in distinct and separate form.

CORRESPONDENCE.

DEPARTMENT OF INTERNAL AFFAIRS,
HARRISBURG, PA., *April 14, 1886.*

W. HAYES GRIER, Esq., *Superintendent of Public Printing:*

DEAR SIR: An act of the last General Assembly of this Commonwealth (P. L., p. 221, s. 7) requires the inspectors of anthracite mines to make annual reports to the Secretary of Internal Affairs, but contains no directions relative to printing the same. Before presenting the question that has arisen in my mind, permit me to direct your attention to the several acts relating to mine inspectors and to the public printing.

I. The appointment of *anthracite* mine inspectors was authorized March 3, 1870, (P. L., p. 12, s. 22,) and they were required to make annual reports to the Governor.

II. The printing law of May 1, 1876, (P. L., p. 77,) authorized five thousand five hundred copies of the mine inspectors' reports to be printed; three thousand thereof for the House, one thousand nine hundred for the Senate, fifty for the Governor, fifty for the State Librarian, and five hundred to be divided equally among the mine inspectors.

III. The appointment of *bituminous* mine inspectors was authorized April 18, 1877 (P. L., p. 56). Reports to be made by inspectors to the Secretary of Internal Affairs, "to be by him recorded and included in the annual report of his department" (s. 12). Revised by act of June 30, 1885 (P. L., p. 205).

IV. The printing law of 1883 authorized to be printed three thousand copies of the mine inspectors' reports; eight hundred for the Senate, one thousand six hundred for the House, fifty for the Governor, fifty for the State Librarian, and five hundred for reserve work (P. L., p. 68). The same act reduced the number of the reports of the Secretary of Internal Affairs, Part III, Industrial Statistics, to four thousand five hundred—one thousand for the Senate, two thousand for the House, nine hundred for the Secretary, fifty for the Governor, fifty for the State Librarian, and five hundred for reserve.

V. An act revising the anthracite mine law was passed June 30, 1885, (P. L., p. 219,) by which it was made the duty of each inspector to "make annual report of his proceedings to the Secretary of Internal Affairs," (s. 7,) but no directions given about printing the same.

The *bituminous* law of 1877 made no provision for the publication of the inspectors' reports outside of the annual report of the Secretary of Internal Affairs, and the inspectors and others could be supplied only from the limited number of copies of the report allowed this Department for distribution. The printing law of 1883 swept away the provisions that previously allowed the *anthracite* inspectors five hundred copies of their report.

It is the desire of most persons interested in the coal business of the Commonwealth, as I know it was the intention of the framers of the inspection law of 1885, that all the mine inspectors' reports should be included in one volume.

Now, if I cause the anthracite mine inspectors' reports to be printed along with those of the bituminous inspectors, in the report part III of this Department, cannot there be issued of that volume seven thousand five hundred copies—four thousand five hundred under paragraph 5, of page 69, P. L. of 1883, and three thousand under paragraph 4, page 70? The number of volumes would not be increased thereby; the Senate, House, Governor, and Librarian would receive the full number to which they are entitled, the only difference being that the matter would be in one volume instead of two.

I am, very truly yours,

(Signed) J. SIMPSON AFRICA,
Secretary of Internal Affairs.

OFFICE OF SUPERINTENDENT OF PUBLIC PRINTING,
HARRISBURG, PA., *May 17, 1886.*

Honorable J. SIMPSON AFRICA,
Secretary of Internal Affairs :

DEAR SIR : Enclosed please find copy of my letter sent to the Attorney General, accompanying your letter of 14th ult., together with the Attorney General's decision in reference to the consolidation and publication of Bureau of Statistics Report and Mine Inspectors' Reports. These reports must, under the present law, be issued separately.

Very respectfully,

W. HAYES GRIER,
Superintendent of Public Printing and Binding.

REPORT.

DEPARTMENT OF INTERNAL AFFAIRS,
BUREAU OF INDUSTRIAL STATISTICS,
HARRISBURG, PA., *May 1, 1886.*

Honorable J. SIMPSON AFRICA,
Secretary of Internal Affairs :

SIR : I have the honor to present herewith the thirteenth annual report of the Bureau of Industrial Statistics, being the third of your official term as Secretary of Internal Affairs.

The Work of the Bureau.

The system adopted by this Bureau of obtaining statistics through the medium of "compulsory blanks" has proven satisfactory. A comparison of the information obtained with the industrial statistics, specially compiled independently of legal requirements, warrants the conclusion that the reports given to us are reliable and accurate. For example, the statistics of the Bituminous coal and coke productions obtained by the Bureau correspond very nearly with the reports of the mine inspectors. The mine inspectors base their reports upon personal observation and information gained from every available source on the ground. The statistics of the Bureau are compiled from the answers written on the blanks sent to and returned by each operator, and, although there is a close correspondence in results, yet the work is accomplished without conference or concert of action with the mine inspectors.

The information as to the production and shipment of Anthracite coal obtained through the instrumentalities used by the Bureau, corresponds, without material difference, with that given to the public by John H. Jones, Esq., accountant for the Philadelphia and Reading Coal and Iron Company. This gratifying result affords conclusive evidence of the efficiency of our system for obtaining information. Mr. Jones has ample sources from which to gather statistics, and is regarded as an expert in matters pertaining to Anthracite coal.

The general accuracy of the information received by this Bureau is further exhibited by a comparison of its reports with those of James M. Swank, Esq., the efficient General Manager of the American Iron and Steel Association, and C. Heber Clark, Esq., the able editor and compiler of statistics pertaining to the Textile industries of the State.

The publication of the opinion of the Attorney General as to the powers of the head of the Bureau in relation to the compulsory blank system, has undoubtedly increased its efficiency ; and it is a source of gratification that the importance of reliable information as to our State industries is being generally recognized. The value of previous reports on this subject is admitted, and a universal feeling is expressed and manifested, by reason of the full answers to the questions propounded, that each year the scope and completeness of similar reports will be increased. The present efficiency of the system has only been attained through patient labor and a careful examination of results. The propounding of questions as to the details of private business was naturally regarded at first as inquisitorial in its character, but manufacturers have become reconciled to making full answers, because of the general information so obtained. No employer of active capital in industrial pursuits any longer doubts the advantage of full information, not only as to his special branch, but as to all others. The object in view impels each operator to give full and reliable answers, while the policy of absolute secrecy adopted and enjoined by the Bureau, and the non-publication of its source of information without the consent of the informant, has removed any lingering objections which were felt by many. But such information is, perhaps, of greater importance to the employé and wage-worker than to the employer. Reliable facts and figures carefully collected and accurately compiled present more conclusive arguments, and are more potent in effect, than myriads of essays advocating reforms, however brilliant and apparently convincing when based on suppositious facts and mere theories.

The attention of the Legislature should be directed to the fact that although the importance of this Bureau is, at this time, universally recognized, yet such limited appropriations, as those heretofore made, will prevent the Chief of the Bureau from complying as fully and successfully as is desirable with the provisions of the laws, establishing and defining his duties. The wisdom of such laws is fully established. That a sufficient appropriation should be made to render them fully operative would seem to be beyond question. Great labor and research are naturally expected, and have been rendered in carrying out their object to as great an extent as an economical application of the means appropriated would permit. What would be a sufficient appropriation depends, of course, on the work to be accomplished and its variableness. I suggest at this time that an amount of not less than $5,000, or a sum corresponding to the appropriations made by the Legislatures of Massachusetts and New Jersey for like purposes, each of which States contains a smaller population and less industries than ours. For the purpose of showing the necessity of an appropriation of the amount stated, a brief comparison of the resources and manufacturing industries of these States with Pennsylvania is made.

The Industries of Pennsylvania.

So rich is Pennsylvania in mineral products, that her position as a great mining and manufacturing center is not, by many persons, even within her own limits, fully appreciated. She furnishes the entire supply of anthracite coal, and nearly all the petroleum, while of a bituminous coal output in the United States and territories of seventy millions six hundred and one thousand and twenty-four tons in 1885, Pennsylvania shipped in the neighborhood of twenty-five million tons, or over thirty-three and one-third per cent. In the matter of coke, the total amount produced in the United States in 1884, was four millions eight hundred and seventy-three thousand eight hundred and five tons, and of this four millions three thousand three hundred and forty-four tons were supplied by Pennsylvania.

But it is not so fully understood that one-eighth of the total number of manufacturing establishments in the United States are located in Pennsylvania, and that of the whole number of persons employed in manufacturing, one-seventh reside in this State.

Pennsylvania, New Jersey, and Massachusetts.

The following table shows the number of persons employed, the nature of their employment, and the area in square miles of the States of Massachusetts, New Jersey, and Pennsylvania, as compiled from the United States census of 1880, and the report of the Secretary of Internal Affairs of Pennsylvania, for 1885:

	Massachusetts.	New Jersey.	Pennsylvania.
Number of inhabitants,	1,783,085	1,131,116	4,282,891
Employed in all occupations,	720,077	396,879	1,456,067
Employed in manufactures,	352,255	126,038	387,072
Employed in agriculture,	64,973	59,214	301,112
Employed in trade and transportation,	115,376	66,382	179,965
Employed in professional and other services,	170,160	110,722	446,713
Employed in quarries.	3,000	900	5,000
Employed in coal mining,	None.	None.	140,000
Employed in petroleum production,	None.	None.	12,000
Number of factories,	14,352	7,128	31,232
Number of quarries,	113	25	164
Number of mines.	None.	None.	500
Number of oil wells,	None.	None.	22,000
Area in square miles,	8,315	7,815	45,086
Area of bituminous coal counties,			20,231
Area of anthracite coal counties,			5,318
Area of petroleum counties,			7,354
Area of fifteen eastern counties,			8,376
Area of five counties bordering on Ohio,			3,271

The Bituminous coal and coke industry is yearly becoming of greater

importance, and will demand in the future, to a still greater extent, the earnest attention of this Bureau.

What are known as our Bituminous coal and coke counties have an area of four thousand square miles greater than the areas of Massachusetts and New Jersey combined. The population of these counties is greater by two hundred thousand than that of New Jersey, and but three hundred and ninety thousand less than Massachusetts.

The following table shows the area and population of our Bituminous coal field by counties:

	Area in square miles.	Population.
Allegheny,	757	355,869
Armstrong,	612	47,641
Beaver,	452	39,605
Bedford,	1,003	34,929
Blair,	510	52,740
Bradford,	1,162	58,541
Butler,	814	68,656
Cambria,	666	46,811
Cameron,	381	5,159
Centre,	1,227	37,922
Clarion,	572	40,328
Clearfield,	1,130	43,408
Elk,	774	12,800
Fayette,	830	58,842
Huntingdon,	899	33,954
Indiana,	828	40,527
Jefferson,	646	27,935
Lawrence,	376	33,312
McKean,	1,007	42,565
Mercer,	666	56,161
Somerset,	1,102	33,110
Tioga,	1,124	45,814
Venango,	658	43,370
Washington,	889	55,418
Westmoreland,	1,046	78,036
	20,231	1,393,453

The counties of the Anthracite coal field have an area equal to two-thirds of that of New Jersey, and they contain a population equal to one-half of that of our sister State. The combined population of our Anthracite and Bituminous coal counties is greater than that of Massachusetts, and the distance between the extreme western Bituminous region, and the nearest Anthracite coal field, is greater than the entire length of Massachusetts.

The following table shows the area and population of the several counties in the Anthracite region:

Anthracite Coal Region—Counties.	Area in square miles.	Population.
Carbon,	402	31,923
Columbia,	479	32,409
Dauphin,	523	76,148
Lackawanna,	424	89,269
Luzerne,	926	133,065
Northumberland,	462	53,123
Schuylkill,	840	129,976
Sullivan,	434	8,073
Susquehanna,	828	43,354
	53,318	597,340

Natural Gas.

The introduction of natural gas has added a new source of wealth to the counties comprising the Petroleum region. This territory contains twenty-two thousand pumping and flowing oil wells. Its area is equal to that of the entire State of New Jersey, and it is more than probable that by reason of new developments it will exceed that of Massachusetts. Its present population is equal to one third of that of New Jersey. The use of natural gas for manufacturing purposes is yet in its infancy, but full statistics of the manner, mode, and economy of its production and use are of vital interest.

The following table shows the area and population by counties of the Oil region.

Petroleum Region—Counties.	Area in square miles.	Population.
Armstrong,	612	47,641
Beaver,	452	39,605
Butler,	814	52,536
Clarion,	572	40,328
Crawford,	1,005	68,607
Forest,	431	4,385
McKean,	1,007	42,565
Venango,	658	43,370
Warren,	914	27,981
Washington,	889	55,418
	7,354	422,436

The counties enumerated in the following table are all situated east of the Susquehanna river, none of which contains Bituminous coal or Petroleum, and in only three of which Anthracite coal is mined:

COUNTIES EAST OF THE SUSQUEHANNA RIVER.	Area in square miles.	Population.
Berks,	900	122,597
Bucks,	595	68,656
Carbon,	402	31,923
Chester,	763	83,481
Dauphin,	523	76,148
Delaware,	195	56,101
Lancaster,	973	139,447
Lebanon,	354	38,476
Lehigh,	364	65,969
Monroe,	595	20,175
Montgomery,	484	96,494
Northampton,	382	70,212
Philadelphia,	130	847,170
Pike,	631	9,663
Schuylkill,	840	129,970
Wayne,	747	33,518
	8,878	1,879,995

The above tables are printed for the purpose of giving an approximate idea of the extent of territory and the diversified character of the products and industries of the State. The area of the counties mentioned in the last table is greater than that of New Jersey and Massachusetts combined, and they have a population in excess of either. Their population is greater than that of Massachusetts by about ninety seven thousand, and of New Jersey by about seven hundred and forty-nine thousand. The Labor Bureau appropriations made by Massachusetts and New Jersey are wisely and profitably applied. Pennsylvania has a vastly greater extent of territory, more population, infinitely greater resources, and an industrial production, almost exhaustless in amount, in a condition of development. Greater in many respects than Massachusetts and New Jersey combined, her appropriation for the purposes of obtaining statistical information, should certainly be in proportion to those States at least.

The Joint Publication of the Bituminous and Anthracite Mine Reports.

In the report of this Bureau for 1883, it was suggested that a law should be enacted requiring the inspectors of Anthracite coal mines to report to the Department of Internal Affairs.

The Bituminous coal inspectors were required by law to so report and the advantage of including both anthracite and bituminous in the general report, and printing the same in one volume along with the other statistics of this Bureau, is obvious. An act was passed by the Legislature of 1885 with the evident purpose of accomplishing this object. But by what it is to be presumed was an oversight, no power was expressly granted to the Secretary of Internal Affairs to do more than place the reports of the inspectors of Anthracite coal on record in his department. It is respectfully suggested that some action be taken by the next Legislature in the premises, and that power to print as above suggested be expressly conferred on that

official. An earnest wish for such a joint publication is expressed, especially by those engaged in the mining of coal. Owing to the demand for the reports of the Bureau, the printing of a larger edition is not unreasonably asked for.

Mining Laws.

I respectfully suggest an amendment of the section of the Anthracite mining law relating to penalties. Under the provisions of the present law, a fine of fifty dollars or imprisonment not exceeding three months, or both, may be imposed at the discretion of the court. This is clearly inadequate. Entire obedience to a law, the intent of which is to protect by proper safeguards the persons and lives of those engaged in a necessarily dangerous employment, should be vigorously enforced. A refusal to comply with the provisions of this law may result in the criminal killing of honest, hard-working men, rendering desolate happy firesides, and throwing upon the cold charity of the world many widows and orphans. The law passed is regarded as just in its provisions, but the maximum penalty for its willful violation should be greatly increased, and left to the discretion of the court to impose it in accordance with the heinousness of the offense.

There is much misunderstanding as to the meaning of that section of the law making it compulsory for owners, superintendents, and mine foremen to furnish the props and timbers necessary for the safe mining of coal. The operators in many instances have deducted the extra expense incurred from the pay of the miners, who contract to do the work by the piece or yard. The miners have objected to this reduction, and claim that the law should be so amended as to protect them. There should be no ambiguity in the law. The owners, superintendents, and foremen should be required not only to furnish the necessary props and timbers, but it should also be part of their duty to see that these be properly used. Any extra expense incurred thereby is necessarily a part of the cost of mining, and whether it is to be deducted from the pay of the miners or not, should depend on the nature of the contract entered into by them.

The Enforcement of Labor Laws.

I have received letters from the heads of various labor organizations throughout the State urging the appointment of special officers, whose duty it shall be to see that the laws passed for the benefit and protection of workingmen in mines and factories are enforced. These letters confirm me in the views expressed on this subject in a former report. The enforcement of these laws (and the necessity of their enforcement is unquestionable) should not be left to the employer, or, in the case of mines, to the mine inspector. The employer, either through self-interest or carelessness, will sometimes neglect to obey the laws. It is a thankless, as well as a dangerous, task for the employé to assume the position of prosecutor, and the scope of the mine inspector's duty is too large for him to give the mat-

ter proper attention. Such officers as are here suggested have been appointed in Massachusetts, and they are reported as discharging their duties with good results.

Contract Labor.

In a former report I discussed the evils incident to the introduction of imported contract labor. Some features of the recent labor troubles throughout the country have tended to confirm me in the views then expressed. The vast majority of wage workers in this country, whether native-born or those emigrating here of their own accord, are intelligent, industrious, and law-abiding. But hordes of pauper laborers, strangers to our language, and without a knowledge or appreciation of our institutions, have been foisted upon us through the greed of selfish contractors. By such importations of labor, a momentary gain to the contractor is attained, but the seed of discontent is sown in the minds of our industrial population, and missionaries of ignorance, crime, violent communism, and anarchy are let loose upon the land. That the result should be riot and bloodshed is not surprising. We refer with pride to the building of great public works, and the yearly construction of thousands of miles of railroads, for the reason that such improvements are looked upon as an index of national and State prosperity and progress. But if the unwarranted profits of the enterprise accrue solely to the contractor, while the masses of the people are proportionately impoverished by reason of the introduction of an unnatural and unlawful competition, then such public works present no evidence of national prosperity or progress, and will prove a curse instead of a blessing. The introduction of imported contract labor is a natural and reasonable cause for discontent among our own workingmen. The old maxim is that the laborer is worthy of his hire, and he should be subjected only to just and healthy competition. He naturally and justly expects to be benefited, not injured, by the material and intellectual progress of the nation. This evil, I am gratified in being able to state, is gradually being recognized and frowned upon by the employer as well as the employed.

Status of the Wage-Workers.

There is no question more difficult of solution, nor one more urgent in its demand for a wise settlement, than that of the relative position in the future of the wage-workers to other laborers, physical and mental. The first and greatest step toward its solution is the full recognition in the public mind that the question itself has an actual living existence. That it does exist, although perhaps not clearly formulated, is evidenced by discussions in the press, the pulpit, and legislative assemblies, by the increase and growing power of labor associations, the demand for higher wages, for less hours of labor, for increased privileges, and by strikes, even where the claims made are apparently unsubstantial and intangible. The more quickly the fact

of the existence and importance of this question is recognized, and earnest, honest, and able men of all conditions in life unite in an effort for a solution of it which will render justice to all, the more quickly will threatening dangers be averted. All facilities for the enjoyment of physical and intellectual culture have accumulated. In these changed conditions, the wage-worker feels that he is deprived of his rightful share of the accrued benefits. The rich and the poor are further apart than ever before. True, there has been an advancement for both, but not in proper proportions. With many modern improvements, greater wants and higher aspirations have arisen. Luxuries of a few years ago are the necessities of to-day which the laborers' wages are often not sufficient to supply. How to adapt himself to the new conditions, is the problem he is seeking to solve. How to rise to his proper status, he does not fully understand, and, naturally, a vague but positive feeling of discontent is engendered by this inability. That under such circumstances, a large crop of pretended political economists, of various grades of ignorance, should come to the surface is but natural. Among the many propositions advanced by this school of economists is the absurd one that a cheap, plain, and uniform diet should be adopted and adhered to by laboring men. A New England philosopher has evolved what he considers the startling fact that New England intelligence, which is of the highest degree, is based on a diet of pork and beans; consequently, that pork and beans should be the workingman's food. As well might it be argued that the unwearied industry and sterling honesty of the Pennsylvania Dutchmen have their foundation in "speck and sour-krout;" or that the late civil war had its origin in a general and indiscriminate use of "hog and hominy." It is as illogical to regulate the diet and make the manner of living of the poor conform to unbending rules as it would be to establish inflexible regulations for the diet and mode of life of the rich. The use of the products of the earth, the loom and the anvil, will be and should be regulated only by the means to purchase and the tastes of the consumer. The more general the means of distribution, the more completely will consumption conform to a production which fully employs labor. To solve the labor question, it must, as before suggested, be fully understood to exist, and then be solved in a way consistent with moral, mental, and material progress. When this is properly understood, a great step will have been taken toward its proper solution. With a just acknowledgment of the rights of the wage-worker, I have firm faith that a solution satisfactory and beneficial to all will be arrived at. In the words of Bishop Potter, of New York, in a late pastoral letter: "What the laborer wants from his employer is fair and fraternal dealing, and a recognition of his manhood, rather than a condescension to his inferiority." If the wage-worker is met in this spirit, good results must necessarily follow. To so meet him, is not only politic but right, for again quoting from Bishop Potter, "no Christian man can innocently be indifferent to the interests of working men and women."

Eight Hours for Labor.

One of the demands now being urged by the wage-worker is, that the standard measure of a day's work be fixed by law at eight hours. It is a subject which, in a review of the labor situation by the Legislature, should receive earnest consideration and attention. The laborer has but slowly and painfully emerged, in the lapse of ages, from slavery, serfdom, and villeinage to his present status, and to fewer hours of work and lighter toil. In each step of his progress he has met opposition, and he has reached his present position despite the gloomy prophecies and predictions, by so-called economists, of the financial revulsions and ruin which must ensue from the attainment of his rights. In the seventeenth century the common laborer in England, according to Macaulay, received but sixteen cents a day, and the skilled mechanic but a shilling.

In those days, as now, complaint was made of the high wages paid. A member of Parliament, in 1680, said, in a speech, that English manufactories could not thrive because the English mechanic demanded a shilling a day.

In 1845, when the ten-hour bill was introduced into the English Parliament, it was opposed by Richard Cobden and John Bright, both of them recognized friends of the laboring classes. Its passage, it was foretold, would be utterly ruinous to the manufacturing interests. Yet, in 1847, such a bill became a law, was enforced, no one was ruined, and the rate of wages, instead of diminishing, increased. John Bright, twenty-one years later, acknowledged the fallacy of his former views, and said: "If the Government were prudent, economical, and just, every man in England might have his daily labor lessened by not less than two hours without the slightest diminution of his comfort."

The opponents of this measure charge that the wage-worker does not require less hours of labor, therefore the arguments that are advanced to shorten them are sheer demagogism. Charles Sumner was not a demagogue, but he wrote from the United States Senate chamber, May 25, 1872, and said: "I declare my sympathy with the workingmen in their aspirations for greater equality of condition and increased opportunities. I, therefore, insist that the experiment of an eight-hour law in the national workshops shall be fairly tried, so that, if successful, it may be extended. Here let me confess that I find this law especially valuable, because it promises more time for education and general improvement. If the experiment is successful in this respect, I shall be less curious on the question of pecuniary profit and loss, for to my mind the education of the human family is above dollars and dividends." The ritual of Free and Accepted Masonry, the oldest of all secret orders, is not considered demagogism, and it expressly recognizes the division of the day into three equal parts—eight hours for labor, eight hours for sleep, and eight hours for the service of God and man.

The same reason which induced the passage of the ten-hour bill, operates

with greater force now. The advance of civilization, with new inventions and improved machinery, have lessened labor and increased production. One of the benefits of progress claimed by the workingman as owing to him, is a reduction of the hours of labor. Under the present system of distribution, he is not able to consume sufficient of the increased product to justify his employment at full time. Steady work and no enforced idleness he earnestly desires, and his hope is that such a desideratum can be reached by reduced hours of labor.

That eight hours will, in the not distant future, be the standard measure of a day's work, is, in my opinion, beyond doubt. It is in accord with the spirit of the age and our advance in the material arts and sciences.

Strikes and Lock-Outs.

If we take into consideration the fact that during the past year there has neither been a commercial panic, nor an appreciable revival in business, the number of strikes and lock-outs may be regarded as phenomenal. There have been a number of strikes in Pennsylvania, but none of a very serious character. There were about twenty in the Textile industry, but they lasted only a short time, and occasioned no very great inconvenience. There were comparatively few among the Iron and Steel industries, which are generally prolific in strikes. In the south-western part of the State there were several for advance of wages, but as the demand made was granted, they were not of lengthy duration. The most serious list of strikes is furnished by the Bituminous coal fields. The miners along the Monongahela river and the miners and coke men in Fayette and Westmoreland counties struck for higher wages. In this strike there were about fourteen thousand employés engaged, and in several instances riot and bloodshed resulted. Nevertheless, in number and magnitude of strikes, Pennsylvania bears no comparison to those in other manufacturing and mining States. The "Wallace Voluntary Trade Tribunal Act" is as near perfect in its provisions as can well be devised. When there is a desire to arbitrate, this law affords a ready means by which a settlement can be effected. But the real difficulty is that when men's passions are excited to the verge of lawlessness, they do not sit down calmly to reason together; the disposition then is to fight. Not only is the proposed submission to a tribunal voluntary, but the tribunal itself is without practical power to enforce its decrees. Very frequently, whatever may be the avowed object of a strike, the real point in controversey neither party is willing to submit to an umpire. Notwithstanding this, arbitration is the true remedy, and doubtless the time will come when it will be acknowledged as the only successful means to end vexatious disputes between the employer and employé. The great body of the best of the laboring classes have learned, and possibly all will learn sooner or later, that whatever may be the wrongs of the workingman, a strike generally brings, without compensatory benefit, dis-

aster and suffering to the striker and his family: and where it does not ruin, often so impairs the capital of the employer as to deprive him of the means of successfully conducting the industry in which he is engaged. During the pendency of a strike the vital powers of trade, production, consumption, and proper distribution cease. The right to strike, like the right of revolution, is inherent, but should only be asserted as a dernier resort.

The practical settlement of labor troubles by means of arbitration is not yet attained, but it is attainable. Legislation, so far as practicable, should promote such end. It is only during the present generation that the legal right of laborers to organize for mutual protection, has been recognized by the courts of law. This right, until a comparatively recent period, has only been acknowledged grudgingly, and even at the present time by many well-meaning men is feared as being subversive of law and order. Fear of this kind is groundless. Instead of being denounced, such organizations should be permitted to legally incorporate. Under proper regulations and the influence of wise counsels, from corporations of this character there need be no cause of fear. They must be recognized as men, must be trusted as men, and they will not prove faithless. There need be no shrinking from and fear of exposing the details of business. But a few years since, and the Anthracite coal region of Pennsylvania was the scene of labor troubles and protracted strikes. In that region strikes are now infrequent, and for the reason that existing business conditions are openly avowed, and a basis of wages contingent upon such conditions fixed. If we do justice to the workingman, and trust in his intellignce, the result will be for good.

Individual Rights.

The right of labor to organize is the culminating growth of centuries, and is evidence not only of its increased power but also of the progress of a liberal civilization. Capital and labor unite for the purpose of production and distribution—they diverge in a dispute as to a division of the profits. Capital is concentrated, governed by single intelligence, is conservative and oftentimes selfish and tyrannical; labor is diffusive, naturally disorganized, well intentioned, but frequently arbitrary and unjust in action. Labor is divided by numberless and divided counsels. By many wage-workers the encroachments of capital are dreaded, and as a consequence labor organizations are formed in which control of individual action is surrendered for what is deemed the general good. By others, the entire right of personal action is insisted upon and the edicts of trades-unions are defied. These conditions naturally inspire triangular conflict. The capitalist, governed not only by selfish motives and a desire for profits, but also by the dread that the increasing power of labor will deprive him of all but a nominal control of his own property, stands in opposition to the claims of both organized and individual labor. But it is organized labor

that the capitalist most fears, and, therefore, it is with it that he most strongly contends, and encourages individual action. All laborers sympathize in the demand for a just recognition of their rights, yet the decrees of organized labor are repudiated by unorganized labor. The result sought to be attained by organization being thus prevented, angry controversies arise. The animosities between the different classes of wage-workers are consequently often more relentless than between labor and capital. Capital is the base line of the triangle which labor approaches by diverging lines, one through trades-unions and the other through individual labor.

Each party to the triangular conflict loudly proclaims the doctrine of individual rights and liberties. And each party is justified in the claim made. The difficulty, however, is that each, while demanding its own, neglects to fully recognize the rights of others. The right to hold private property and to have such property protected, is fundamental to our system of government. Yet such right is held in common with the individual right to labor and to organize to protect such labor. Neither capital nor labor has the right of encroachment. National liberty consists in the surrender of individual liberty, so far as such surrender is essential to the common welfare. For labor to attempt to absolutely control capital is wrong and should be resisted ; but for capital to attempt to discourage and break down labor organizations, is equally worthy of reprobation. Wage-workers have a right to organize, and through such organizations seek self-protection. But such organizations are simply voluntary, though lawful, and not obligatory upon the laborer. It is a matter of individual judgment to him as to whether he shall or shall not join an organization which requires him to surrender a portion of his individual liberty for what is deemed the common good, or whether he shall retain the right to personally control his actions.

Individual competition may, and frequently does, lessen the effect of organized effort, but the right of the individual is as sacred as the right of the trades-union, and the market for labor is, by law, as open to one as the other. The effort to dictate to the employer as to whom he shall employ or discharge, is not only unlawful but cannot be successfully maintained. To prevent individual labor from working on its own terms is equally unlawful. Unfortunately, from the misunderstanding of the rights of others, many of the conflicts between labor and capital have arisen and bloodshed and riot ensued. No one is more interested than the laboring man in maintaining the principles of law and justice. Only through these can he hope to attain success. Labor is a high and mighty force, but if it invokes destruction and defies law it hastens its own downfall. It may disrupt society, but it will, as to itself, undo the work of centuries. The present period is one of danger, but if prudence is observed by all classes, and just rights maintained and advanced by well-chosen argument, based

upon acknowledged truth, an era of unexampled prosperity, national and individual, is before us.

Correspondence.

The increasing correspondence of this Bureau is evidence of the favor with which the economic and the industrial world regards the work being done by it. In compliance with requests made, copies of its reports have been mailed to political economists, statisticians, editors, and workingmen's organizations in England, Wales, Scotland, France, Germany, Italy, Austria, Switzerland, and Canada. The reports are in the possession of many colleges and universities in this country and abroad. The demand for the reports from various institutions of learning is on the increase. A noticeable fact in this connection is the numerous requests made by ministers of the gospel; also by many students, young as well as old. A general interest is evidently being felt in the statistics relative to the present and past condition of the workingman, and this must be productive of good results.

Convention of Bureaus.

The third annual convention of the Chiefs of the Bureaus of Labor Statistics was held in Boston, Massachusetts, beginning June 29, 1885. Thirteen out of sixteen States in which Bureaus are established were represented. Since the last meeting, three new Bureaus have been created—one in Connecticut, one in Kansas, and the other (National Bureau) in Washington. Hon. Carroll D. Wright, the head of the National Bureau, was the president of the convention. The familiarity of Mr. Wright with the duties of his position, and his acknowledged ability as a statistician, will enable him to fill his high station with honor to himself and advantage to the country, and the result of his labors will, undoubtedly, demonstrate the wisdom of Congress in establishing the Bureau, and of the Chief Executive in making the appointment. The State Bureaus possess in Mr. Wright an ally not only able but willing to assist and counsel in their multiplied duties and labors.

The business of the convention, and the personal conferences of its members, were useful and interesting.

I take pleasure in making acknowledgment and expressing my thanks to John L. Butler, Esq., and Mr. Alfred Sanderson, for valuable services rendered me.

JOEL B. McCAMANT,
Chief of Bureau of Statisties.

THE MANUAL TRAINING AND TECHNICAL SCHOOLS OF PHILADELPHIA.

By Edmund J. James, Ph. D., Professor of Public Finance and Administration of the University of Pennsylvania.

The subject of manual and technical training has excited, within the last few years, a deep and wide-spread interest in nearly every civilized country. The causes of this interest are partly industrial and partly educational. They have resulted in bringing about the establishment of a large number of new kinds of schools and have caused a great change in some of the old schools.

The rise of the technical professions, such as mechanical engineering, civil engineering, architecture, chemistry, mining engineering, etc., as independent branches of employment, requiring, under the modern conditions of industry, a great amount of technical knowledge and theoretical and practical training, made professional schools necessary, which might do for those who expected to follow these callings what the medical school does for the doctor or the law school for the lawyer. The rise of these schools was a natural result of the growing and developing conditions of modern life in every department. It is paralleled by the establishment of veterinary schools, dental schools, business colleges, and normal schools, which are to satisfy the demands of modern life in other directions. They are new institutions which are intended to satisfy a new demand in our modern life more easily and completely than it could be satisfied in any other way.

Another class of schools has also arisen, the so-called craft or trade schools, which are intended to prepare the pupils entering them for the actual practice of the handicrafts themselves. They are, in the opinion of those who favor them, rendered necessary by the decay of the apprenticeship system. The old apprenticeship system, whatever its faults, did, certainly, in its best days, satisfy a most important public want—that of preparing boys who expected to pursue the mechanical callings for a livelihood, not only with a tolerably thorough course of training in the practice of their callings, but, also, in many cases, with a knowledge of reading, writing, and ciphering, which, for the times in which it flourished, was very fair indeed. But, however we may regard it, whether as satisfactory or not, we certainly cannot deny that it is now dying, if, indeed, it is not already dead. It does not offer to the boys of the present day a sufficient opportunity to prepare themselves quickly and thoroughly for the handi

crafts. This is now generally agreed to, both by employers and workmen. Why this is so, we need not stop to inquire in this connection. What shall be done? This question has been asked in every country in Europe and America within the last twenty years, and no general answer has as yet been given which satisfies all parties. As one solution of the difficulty, it has been proposed to establish a system of trade schools, which shall offer the boys an opportunity to learn every trade which is practiced in the community, and, in some countries and in some cities, many such schools have been established, where the boys have an opportunity to learn at least some of the trades. No country and no locality has, as yet, provided schools sufficiently numerous, or of a sufficiently varied character, to really afford the boy a chance among all the trades.

Quite distinct from all this movement is that which is ordinarily known as the manual training movement. This has arisen from educational sources. Educationists maintain that the child must be trained, not only intellectually and morally, but also physically. To the latter training sb6 congs the training of the hand, not for the purpose of securing bodily exercise as a means of keeping up the physical and hence the mental condition, but as a means of calling forth and training certain mental powers which can be best reached through the medium of training the hand to do, as we train the mind to think, and the eye to see. This kind of training is necessary to all pupils alike, whether they expect to practice law, teach the young, or run an engine. It is a fundamental educational category, which must receive its fair share of attention along with the other departments of educational science and practice. The man whose hand is untrained is, in this view, just as incompletely trained as the man whose eye has never been trained to see. These principles underlie the whole system of kindergarten training. Just as it took a long struggle to force the acknowledgment of the educational value of science study—a fact which is now universally recognized—so it is likely to be a long and difficult struggle to force the acknowledgment of the educational value of this sort of work. According to the view of those who hold this view, manual training should begin in the primary and continue through all grades of the liberal school, and be dropped only when the student turns his attention to the special work of preparing himself for his profession. It is not technical training, but liberal training, and should be classed with Latin and Greek and physics and chemistry, etc., etc., as a liberal branch which cannot be allowed to fail in the education of any one. Another point is urged by this party, and that is that our present school system does actually, by all its tendencies, prepare for certain particular callings, and prevents any one who completes its course from turning his attention easily to other branches. A boy who comes out of a public high school is prepared to be a clerk or book-keeper, or to study a profession, and he is not fit for anything else, though he may have special aptitude for mechanical pursuits.

Now, what is needed in order to supply the defects of our present system is to provide opportunities, in connection with our public schools, for those whose tastes might lead them to mechanical pursuits to acquire some skill in this sort of work, so that they would be at least as well prepared for this sort of work as for clerking or book keeping.

It cannot be said that this idea has been fully carried through in any large system of schools, though in those places where the kindergarten has been established as a part of the public school course it is applied in that department of public school work.

The institutions in Philadelphia which have arisen in answer to these various demands cannot be said to be thoroughly consistent with the theoretical division which I have made above, as they have been organized partly to fill one of these wants and partly to fill another. The University of Pennsylvania established in 1872 a department to furnish the professional education mentioned above. It now furnishes instruction in five of the technical professions—chemistry, geology, mining, civil engineering, mechanical engineering, architecture. The course of study is five years, and regular degrees are conferred on all who complete the professional courses. It now has about two hundred students in these courses who look forward to entering as practical engineers one of these callings.

The second and third wants are partially filled by three institutions which, although similar in many respects, are still quite different in others. These institutions are the Spring Garden Institute, the Manual Training School of Girard College, and the Manual Training High School of the City of Philadelphia. The Spring Garden Institute was first founded and dates back to about 1850, though the mechanical school in connection with it was not opened until 1880. It is this school which interests us chiefly in this connection. It is a tuition school in which the tuition is put at a low figure. The expenses of the institution, over and above those defrayed by tuition, are provided for by private subscription of those interested in its work.

The courses offered in the Spring Garden Institute embrace mechanical drawing, free-hand drawing, architectural drawing, modeling and wood-carving, painting and designing, mechanical handiwork, mechanical drawing, principles of mechanics, geometry, physics, metallurgy, and chemistry. It supports a day school and a night school. To the latter any one is admitted, (for no matter what his age, if he is fitted to profit by the work of the course to which he seeks admission,) at a merely nominal fee. Persons of all callings and prospects seek admission to this school—experienced mechanics who wish to learn something of the theory of their work or something of other branches of work, boys who wish to extend their knowledge of the work to which they are apprenticed, or who wish to fit themselves for their work, so they can get higher wages.

A day school is supported, with a daily session of five hours for five days in the week, and extending from September 14 to June 11. Its course is three years. The following extract from the announcement will explain the details of the school sufficiently for our purposes:

The object of mechanical handiwork schools is the education of young men in mechanic arts. This class of education is no longer an experiment, but is an established feature of educational enterprise both in this country and Europe. The cities of London and Manchester, England, have each their technical schools, and two of our own cities—Chicago and St. Louis—have theirs, under the name of Manual Training Schools.

All the cities of this country of large manufacturing interests are awakening to the very great importance of providing schools for the technical education of that class of their population who are engaged in industrial pursuits—not colleges of technology, which, as a rule, hold the prize they offer beyond the reach of the mass of the people, but mechanical schools, such as these, for supplying training adjusted to the wants of those who are to be our mechanics, and the leading men of our shops and manufactories.

Owing partly to the very numerous sub-divisions of work in mechanical manufactories, the majority of those who enter them for the purpose of learning trades do not advance further than mere tool hands, or bench hands, and as such are not qualified to accept employment in other departments of the trade they set out to learn. It is to counteract this tendency, and to supply the training necessary to produce complete mechanics, that the mechanical schools of this institute have been established.

The demand for good mechanics increases yearly, and, owing to their scarcity, our manufacturers are frequently driven to the expedient of importing from Europe men competent to fill the leading positions in their shops. With a system of technical training for the youth of our country, such as is set forth in these pages, manufacturers would be relieved of this necessity, mechanical trades would advance, and a comparatively easy way to advancement be opened to young men of mechanical tastes and capabilities.

The afternoon session provides opportunity for instruction in mechanical drawing and shop work for those who are employed during the earlier hours of the day. In point of mechanical training, this course is little inferior to that provided for the full-course pupils.

The course of mechanical instruction, with all the classes, is progressive: commencing with simple geometrical figures and ending with the finished model, machine, or pattern.

Competent teachers have been employed to instruct in the various branches set forth in the curriculum of these schools. The shops are supplied with the best of hand and power tools, and the instructors are mechanics of wide experience and the highest skill.

Day Classes.

Full Course.

One term of nine months, commencing September 14 and ending June 11. Five days' instruction per week, and one daily session from nine, A. M., to two, P. M.

Course of Study.

Freshmen—(First Year.)

Mechanical handiwork—comprising a bench course in chipping and filing to line; production of true surface; laying off work and fitting up; and a course in lathe, planer, and other power tool work; also one in carpentry, pattern-making, and elements of moulding.

Mechanical drawing, and elements of machine designing.

Physics.

Elementary mechanics.

Geometry and mensuration.

Weekly lectures on work-shop appliances during first three months, and on machine construction during the remaining months.

Juniors—(Second Year.)

Machine designing and mechanical drawing.

Elementary mechanics.

Free-hand sketching.

Geometry, Trigonometry, Algebra through quadratics.

Shop work (wood and metal.)

Seniors—(Third Year.)

Algebra.

Shop work.

Mechanical drawing and designing.

Free-hand drawing.

Applied mechanics.

Metallurgy.

Trigonometry.

Descriptive geometry.

Chemistry.

Afternoon Classes—Session from Two to Five o'clock.

Course of Instruction.

Metal Working—comprising a course in bench and power tool work. The ordinary operations the pupil will perform in this branch are the following: Laying off work; chipping and filing to line; production of true surface; fitting up work; turning, planing, screw-cutting, boring, and drilling.

Wood Working.—In this branch is comprised carpentry, wood-turning, pattern-making, and elements of moulding.

Lectures on Work-Shop Appliances.—These explain the principles underlying the various mechanical operations performed by the pupils, the correct use of tools and their construction.

NIGHT CLASSES IN MECHANICAL HANDIWORK.

Session from 7½ to 9½ o'clock.

Course in Metal.—This consists in chipping and filing to line; production of true surface; tool dressing and tempering; laying off work; fitting up work; turning, planing, screw-cutting, boring, drilling, &c.

Course in Wood-Working—In this branch is comprised carpentry, wood-turning, pattern-making, and elements of moulding.

The object of the night schools is to supply mechanical instruction to those who desire it, but who cannot attend the day classes; but especially are they intended to assist apprentices and others employed in shops and manufactories. A weekly lecture will be given explaining the use of tools, their construction and care.

EXPENSES.

Students will furnish their own text books where required by the curriculum : also drawing instruments and paper. Drawing boards and T squares are furnished by the school.

TUITION FEES FOR THE VARIOUS COURSES.

The school year consists of one term. The fees are payable in advance. The rates are as follows :

For full course students, first year,	$45
" " " second year,	60
" " " third year,	75
Afternoon students,	30

Night students, Mechanical Handiwork, $12 per annum.

INFORMATION FOR APPLICANTS.

Examination preliminary to assignment to the several morning classes will be held September 10 to 12, inclusive, and any applicants admitted thereafter will be examined at the time of their entry.

Examination for Senior class will comprise, Elements of Algebra, Elements of Natural Philosophy, Plane Geometry, English Grammar and Composition.

For Junior class, examples from Greenleaf's National Arithmetic in Vulgar and Decimal Fractions, Involution, Evolution, and Commercial Transactions.

For Freshman class, Numeration, Notation and Addition, Subtraction, Multiplication and Division of Whole and Mixed Numbers and Fractions.

No examination is required for admission to the afternoon class.

It will be seen that this is in reality a trade school. It professes to be one in its announcement, and it really furnishes for the machinist or carpenter a preparation for the special calling which he expects to follow. The age of the boys who enter the Freshman class of the day school is between seventeen and eighteen. The average age of the night pupils it is not worth while to compute, since there is almost no uniformity, ranging as they do from eighteen to sixty. As to the value of this training, a case may be cited, which, although unusual, may serve to show the possibilities which are open to the right man. A young German, thirty years of age, who had had no technical training at all, entered this school in the fall, and after one year's work in the night school, went out into a machine-shop as a master workman at the bench, receiving the wages of a master mechanic. The scope of the work is, of course, not wide enough to train a master mechanic in every department of the work, but it will make him as efficient as any mechanic in the special work which is offered.

The history of the introduction of technical instruction into Girard College is given in the following extract from the report of the Directors of City Trusts for 1884:

The most important subject occupying the attention of the directors during the year has been that of technical instruction. Very soon after the organization of the college the great importance of more instruction for the boys in the use of tools became apparent. In 1848, a committee of the then board of directors, of which Mr. William J. Duane, who prepared Mr. Girard's will, and the accomplished Henry D. Gilpin, were members, recommended, in the strongest language, some mechanical instruction, but, from some cause, no satisfactory teaching was then introduced.

Soon after the creation of the present board, the Executive Committee, in April, 1873, through Mr. William Welsh, its chairman, recommended that the trades of manufacturing paper boxes and tinware should be taught, but this was not adopted.

In 1876, the Centennial exhibition gathered into its brilliant focus many of the results reached by the best thinkers and most practical men of the civilized world; among them a simple method of teaching the rudiments of practical mechanics to boys, which seems to have been thought out by Russian instructors, and has become popularly known as the "Russian plan." One of the first to appreciate and utilize this system was the President of the Institute of Technology in Boston, Mr. John D. Runkle. He introduced it into that institution, and on the invitation of Mr. Welsh, the president of our board, in the fall of 1877, in a lecture at the Franklin Institute, demonstrated its simplicity and practicability to an audience, among whom were some of our members.

It was not, however, until the year 1881, after great deliberation and an elaborate report from a special committee, that the board, carefully considering three plans suggested to them—*First.* Establishing machine-shops in connection with the school. *Second.* A large establishment, with various tools and appliances suitable to many trades, with competent instructors in each branch. *Third.* Elementary instructions only; not to teach a trade nor secure a product, but to train the pupil in the use of tools—*instruction, not construction*—in fact, the Russian system—adopted the last as not only the most economical, but best adapted to introduction into the college; the first two plans being not only expensive, but in the opinion of some members of the board not in accordance with the scheme of instruction prescribed by Mr. Girard for the education of his beneficiaries.

Early in the spring of 1882, mechanical instruction was begun. Even then, however, only tentatively, and in the single branch of metal-working. This trial was so satisfactory, that in 1883 an appropriation was made for erecting a commodious and properly constructed building for a greater variety of technical teaching. This school building, placed in the northwest part of the college grounds, is fifty-five feet wide by one hundred and fifty-five feet in length, two stories high, and compares in its details of construction with the best models of work-shops of this character.

The building was finished in December, 1884, and formally opened, with appropriate ceremonies, on the 9th of that month. Before the building was completed, elementary instruction in wood-work was introduced, which promises to be as successful as metal-working has proved.

The board have expressed their approval of teaching mechanical drawing in connection with the instruction in the use of tools as soon as the committee having the general supervision of this department shall be prepared to submit a proper plan; this not to lessen nor encroach on time now devoted to the equally important branch of free-hand drawing, which has for many years been admirably taught in the college by Professor Becker.

While the technical school was being built, some of the members of the Committee on Technical Instruction—Messrs. Mann, Gates, Wagner, Caven, and Drayton—accompanied by the Mayor of the city, the President of Common Council, and Mr. James H. Windrim, the Architect of the Trust, visited and inspected the system of teaching and the construction of the work-shops and machinery of the Stevens Institute at Hoboken, the Adler Institute in New York, and the Institute of Technology in Boston. The committee were politely assisted in their investigation by the officers of each of these institutions, but finding the machinery, the arrangement of the work-shops and work-benches of the Institute of Technology in Boston most nearly what they were seeking, drawings and measurements of many of these were made by Mr. Windrim, aided in every way by Professor Runkle, who gave up his whole time to the committee while in Boston.

About two hundred and fifty boys are now under instruction in the use

of tools with metal and wood. Mr. T. Mason Mitchell, the Superintendent of Technical Work, makes satisfactory reports as to the diligence, order, and progress of the pupils. The school-rooms are furnished with the necessary implements and equipments for teaching the use of tools. Though wood-work has only been taught a few months, a decided preference of one branch over the other is already shown by some of the boys. As soon as the boys are able to understand their uses, instruments for testing the exactness of their work are placed in their hands and they are taught how to use them. To do this carefully and precisely, calls for the most persistent and patient efforts from the instructor.

It is only a just tribute to the Spring Garden Institute of Philadelphia to say that the intelligent manufacturers and practical mechanics who manage it, and from whom we have had much help, adopted this Russian system, or one quite similar, several years before it was introduced into the college, incorporating it, however, with more advanced teaching than our board has felt to this time warranted to undertake.

The following extract from the report for 1885 presents the results of the experiment as they seem to the authorities at present:

We have every reason to be satisfied with our success in mechanical instruction. As we reported last year, the experiment began in 1882 was so gratifying that after an experience of a little more than a year, on a small and inexpensive scale, it was determined to increase the number of branches to be taught. On the 9th of December, 1884, more extensive work-shops having been provided, teaching the use of tools on wood-work was introduced, and this has been again supplemented by the erection of a suitable building for a smith-shop and foundry, in which branches the pupils are also instructed. Mechanical and geometrical drawing are now taught likewise. It is not our intention to extend this branch of instruction any farther, unless so directed by the light of experience. We believe that all of these are necessary to equip a lad to go out from the college and take his place among the young mechanics of our country. While each study is taught to every pupil old enough to handle tools, careful supervision by the master soon discovers the particular branch in which each seems to display most capacity; to which, after he has gone through the whole curriculum, he will be permitted to devote most of his attention during the residue of his stay in the college.

The plan of instruction proposed to accomplish this end is to commence with the draughting-room, where the beginner will be required to make a drawing of some simple article, or piece of machinery, which he will then take to the wood-working and turning department and work out as a model for the foundry, where he will be taught to cast it in metal. From the foundry, he will take his casting to the metal bench, and there complete it for the purpose of its design. This finished, he will begin again with some more complicated piece of work in the draughting-room,

going through the same routine again and again, until, draughtsman, wood-worker, turner, forger, and skilled worker in metal, he either goes out into the world competent to earn his living at least, in some one of these employments; or, if, in the judgment of the superintendent, the lad, still under eighteen years of age, is sufficiently instructed in each branch, and shows a preference for one, and has not yet found a suitable place, he may be permitted to make himself more perfect in that one which he prefers.

Our introduction of this mechanical instruction seems almost providential, in view of the scarceness of apprenticeships. Up to almost the end of the year 1884, metal work alone was taught, and during that year only about one third of the boys who left college entered into mechanical pursuits; of those who left during 1885, and since instruction in ordinary wood work and turning has been introduced, two thirds have obtained work in mechanical occupations.

The Superintendent of the Girard Manual Training School takes especial pains to emphasize the fact that the school under his charge is in no sense a trade school. "We do not aim," he says, "to turn out finished mechanics, but to give to the boys an opportunity to acquire a knowledge of the fundamental principles which underlie all mechanical work, to give them a chance to see whether they have any taste for mechanical pursuits or not, and if they should have such tastes, a chance to cultivate them." This sort of training, however, does, of course, fit them, as far as it goes, for the actual work of the shop, and that, too, so successfully that the boys who have taken a year's work in the school are readily accepted in the shops as third-year apprentices, *i. e.*, they begin with the wages which are paid to an apprentice in his third year. The time given to each boy is not very great. When the boys in Girard college reach what is called the last grade of the third school, *i. e.*, about the seventh year of their school-life, say thirteen years of age, they are compelled to take in addition to their ordinary school work the drill in the manual training. Each boy gets under the present system, on the average, five hours per week for two years in the shop, provided, of course, he continues in the college for so long a period after reaching the above-mentioned class. It is proposed to extend the course in the manual training school to correspond to the course in the ordinary school after reaching the grade mentioned above. This would make the course four years long. In some cases, backward pupils who fail to get into the higher grades of school work are allowed to enter the training school at an earlier grade than the others. There are at present five instructors in the school and about three hundred boys receiving instruction. The divisions are about thirty in number, though some of the upper sections are not so large. Only those boys are admitted who are members of Girard College. Fully three fourths of the boys who receive instruction in this school will, in the opinion of the superintendent, gravitate toward the mechanical pur-

suits. Those boys who remain in the college after finishing the course in the manual training school, are allowed to take a third year of special work in the shops, but, according to the testimony of the President of the College, their interest seems to be exhausted with about two years in the shop, and if at the end of that time they do not immediately go into the shop or foundry they are very likely to drift into some other calling. The plan which prevails in this school of having a boy take a piece of work clear through all the rounds of work, designing, pattern-making, moulding, and finishing, tends to strengthen the interest of the pupil in his work. The superintendent says that it was very difficult to keep up the interest of the boys as long as there was only the one department of metal-work finishing, but as soon as the other departments were added this difficulty entirely ceased, and the boys were eager to get into the shop. The cost of the plant which has been put into the school at Girard College was about twenty-five thousand dollars, counting the large steam engine used for power.

The school which is in many respects the most interesting of the three is the new Manual Training High School, which has recently been opened in connection with the public school system of the city. It is a free school, and open to all boys who have passed through the grammar grades of the city schools. As very many more wish to enter than can be provided for, the plan has been adopted of allowing each grammar school to send a certain number, based on its attendance, provided that the pupils attain, in the entrance examination, a certain minimum per cent. of the maximum mark. The pupils are admitted in the order of their standing. The daily sessions of the school begin at 9 A. M., and close at 3.30 P. M., with thirty minutes' intermission. Of the six hours thus spent in the school-room, two hours are given to study and recitation, one hour to drawing, and two hours to shop work, one half of which is spent in working in wood and the other in metal. It will thus be seen that each boy gets ten hours per week in the shop and five hours in drawing. The rest of the time is spent in the regular work of an ordinary English high school.

The course of study and training, as printed in the announcement, is herewith presented:

First Year.

Arithmetic (reviewed); Algebra (begun).

English Language—its structure and use; study of selected classics.

United States History and Civil Government.

Physiology. Physical Geography.

Free-hand and Mechanical Drawing.

Shop Work—carpentry and joinery, wood-carving, wood-turning, pattern-making; proper care and use of tools.

Second Year.

Algebra (finished); Geometry (finished); Trigonometry (begun).

Physics—experimental work in the physical laboratory; Principles of Mechanics.

English Composition and Literature. General History.

Geometrical and Mechanical Drawing. Designing.

Shop Work—forging, welding, tempering, soldering, brazing, moulding and casting; proper care and use of tools.

Third Year.

Trigonometry, (finished,) and Mensuration.

English Composition and Literature. Social Science.

Elements of Chemistry—laboratory work and lectures. Principles of Mechanics.

Book-keeping.

Machine and Architectural Drawing. Designing.

Shop Work—bench work and fitting; turning, drilling, planing, screw-cutting, etc. Study of the steam engine, including management and care of steam engines and boilers.

Elementary principles of the textile and fictile arts, stone-work and masonry. Principles of construction. Mechanism.

Instruction to be given in the properties of materials—wood, iron, brass, clay, stone, wool, cotton, throughout the course.

It should be said that the course outlined above is only the projected one for the last two years, since the school has thus far only one year's instruction, having been opened in September, 1885. The present class had one hundred and thirty-two boys at the beginning of the year, of whom about twenty have already left, ten of these going into shops. A second class will be admitted in September, 1886, and the third in September, 1887, which will thus fill up the school. The school, as at present organized and planned, can accommodate about three hundred boys in the three classes. During the past year, there have been six teachers; three more will be added for next year, and three more when the third class is admitted, making, when the complement is full, a teaching force of twelve. This will allow the divisions to contain each about twenty-five on the average, though the upper classes will likely be smaller and the lower somewhat larger. The average age of the boys admitted last September was fourteen years and seven months. None are admitted under fourteen years of age. The average age of the freshman in the Spring Garden Institute Mechanical School is about seventeen years and six months, being about three years older than those admitted to the Manual Training High School. It is an interesting fact, and one greatly in favor of our public school system, that, in the opinion of Lieutenant Crawford, who was formerly at the head

of the Spring Garden School, and is now principal of the Manual Training School, the boys in the latter, although so much younger than those in the former, are fully their equals in all the work of the school. He attributes it to the fact that the latter have all gone through a regular course of training in the public schools, whereas the former have often had little or no such training. The cost of the plant in metal and wood-working for the present class, *i. e.*, for one hundred and thirty-two boys, was one thousand dollars. It is estimated that the cost of the additional plant necessary for the next class will be about six hundred dollars. The daily order of exercises and class organization of the first year's class is shown in the following scheme:

FIRST YEAR.

Monday.

CLASSES.	9 to 11, A. M.	11 A. M., to 1, P. M.	1 to 1.30.	1.30 to 3.30, P. M.
A*	Lit. Dept. { Literature. Elocution.	Drawing and Mathematics.	Recess.	Shop { Metal Work. Wood Work.
B	Shop { Metal Work. Wood Work.	Lit. Dept. { History. Physical Geography.		Drawing and Mathematics.
C	Drawing and Mathematics.	Shop { Metal Work. Wood Work.		Lit. Dept. { Composition. Physiology.

Tuesday.

A	Drawing and Mathematics.	Shop { Metal Work. Wood Work.	Recess.	Lit. Dept. { Composition. Physiology.
B	Lit. Dept. { Literature. Elocution.	Drawing and Mathematics.		Shop { Metal Work. Wood Work.
C	Shop { Metal Work. Wood Work.	Lit. Dept. { History. Physical Geography.		Drawing and Mathematics.

Wednesday.

A	Shop { Metal Work. Wood Work.	Lit. Dept. { History. Physical Geography.	Recess.	Drawing and Mathematics.
B	Drawing and Mathematics.	Shop { Metal Work. Wood Work.		Lit. Dept. { Composition. Physiology.
C	Lit. Dept. { Literature. Elocution.	Drawing and Mathematics.		Shop { Metal Work. Wood Work.

Thursday.

A	Lit. Dept. { Civil Government. Physical Geography.	Drawing and Mathematics.	Recess.	Shop { Metal Work. Wood Work.
B	Shop { Metal Work. Wood Work.	Lit. Dept. { Civil Government. Physiology.		Drawing and Mathematics.
C	Drawing and Mathematics.	Shop { Metal Work. Wood Work.		Lit. Dept. { Language. Physiology.

Friday.

A	Drawing and Mathematics.	Shop { Metal Work. Wood Work.	Recess.	Lit. Dept. { Language. Physiology.
B	Lit. Dept. { Language. Physical Geography.	Drawing and Mathematics.		Shop { Metal Work. Wood Work.
C	Shop { Metal Work. Wood Work.	Lit. Dept. { Civil Government. Physical Geography.		Drawing and Mathematics.

*Each section is divided into two divisions for recitation purposes, making in all six divisions in the class.

The testimony of all the men connected with these schools or who have examined them and their working, is very uniform as to their unqualified success. They all agree, that their existence gives the boy who attends them a chance to find out whether he likes mechanical work or not, and whether he has ability in that direction. Such school offers a very much better elementary training than a boy can possibly get in an apprenticeship. For in nearly all cases, an apprentice has to take his chances of learning the business, since few masters nowadays take the trouble to instruct a boy properly. Again, in a school of this kind they are taught to think about their work, why they do so and so and not otherwise ; whereas in the actual work, nearly every thing goes by rule of thumb. If a boy is unusually quick and ambitious and industrious, he can learn the trade properly in a first-class machine shop, but such boys are few in number and such shops not very numerous. Boys who have had such courses are enabled to find out what particular branches of the work they like best, and on going out can prepare themselves for such work especially; whereas in a shop, it is rare that a boy is enabled to go from one branch of the work to the other until he has learned all thoroughly. It is for the interest of the foreman to keep a boy at one piece of work as long as he can, since by this means he acquires most quickly such skill as is profitable for the foreman, though it is at the expense of his general training. Experience shows that the shops like the school-bred men are better than the others, and that they will give them the preference over the latter, other things being equal. In all of these schools the boy is thoroughly instructed in the elements of working in wood and metal, and in mechanical drawing and designing ; he is thereby enabled to begin to earn his bread at an earlier age than if he had gone as an apprentice. The foundation is laid for a very superior mechanic and for a much better citizen. On nearly every count the school is superior to the shop for the early work of the future mechanic.

The age of the boys who have had access to this work so far, is from thirteen years and upward. The proposition is now being discussed in the Philadelphia Board of Education to try the experiment of connecting these manual training schools with the grammar schools of the city, and thus extend their advantages to a much larger number of pupils. It is only by this means that the great majority of the pupils can have any access to opportunities of this sort, and it is certainly the only plan by which the liberal elements of education, which lie in all training of the hand, can be incorporated in the education of every child in the schools. There is little doubt that this feature of manual training for its educational value, will, ere long, become characteristic of our public school system, not only in Philadelphia, but as well in every city which would keep abreast of the times in educational progress.

REVIEW OF THE TEXTILE INDUSTRIES FOR 1885.

By Charles Heber Clark, Esq., Editor of the *Textile Record*, Philadelphia.

The textile industries of Pennsylvania obtained no relief from the depression which existed last year until late in the autumn, when the beginning of an improvement in business became distinctly apparent. This movement toward better things continued without interruption, and, when the year closed, there was promise of speedy return to a condition of prosperity.

It is noteworthy that this improvement manifested itself before any of the many schemes for bringing relief to the industrial situation, proposed by sundry philosophers, had practical application and trial. No changes had been made in the tariff upon which advocates of free trade laid the heavy charge of responsibility for the depression; there was no diminution of the number of silver dollars coined. Congress had not met, and so could not claim credit for assisting the improvement, and no new avenues had been opened for the introduction of our products to those mysterious "markets of the world," of which free-traders talk so much in general terms without condescending to particulars. The improvement in business came in such a way as to confound all the prophets and the industrial doctors, and it came without any "boom," but by processes so gradual that there was no temptation to manufacturers to enter upon rash ventures.

One of the remarkable features of the change was that while the demand for textile fabrics increased very perceptibly, there was not, nor has there been yet, any considerable advance in prices. For all but fabrics of the most superior kind, prices remained at low figures, and there was no opportunity for the most careful manufacturer to make any but a narrow profit. It is probably not the function of this report to discuss such a matter fully, but it may at least note the fact that industry all over the world appears to have entered upon an era of low prices, and it may recommend consideration of the further interesting fact that the decline in the price of silver seems to represent, with more or less exactness, the fall in prices generally.

The return of prosperous business conditions thus happily promised, encountered near the close of the year a serious check. During the year there were many labor agitations for increase in wages, but these were usually of small dimensions and were strictly local in their character. With the improvement of business, however, there was a notable increase of restlessness among the workmen, and before the year was out there had begun a labor

movement which since has promised to become the most powerful and formidable enterprise of the kind that ever thrust itself upon public attention.

The spectacle is presented of the laborers of the country combining in a vast organization, resolute to the attainment of a single object, namely, the allotment to the laborer of a larger share of the profits of industry. The situation is unique in this particular. Never before, in the history of the world, has any laboring population possessed, with the practice in organization which the trades-unions here supplied, the political power that American workingmen have to-day. The possibilities, political, industrial, and other, suggested by such a combination deserve very serious consideration.

Dealing here with facts, and refraining from wide speculation, it is only necessary to recognize that the existing conditions give promise of considerable changes in the relations of employers and employed in this country. The only thing that need be said here concerning the very uncertain outcome of the struggle, is that any disposition of the disputed questions will inevitably not be final unless it be made in accordance with the requirements of exact justice. Even a colossal union of laborers, voting as a unit, cannot despise the fact that the employer with capital is as important a factor in the industrial situation as the laborer; that he is not necessarily a public enemy; that he has indisputable rights, and, more than this, ability to combine with his fellows for self-protection, and, as a last resort, absolute power to shut his mill down.

The success of the labor-unions hitherto may possibly be attributed, in some measure, to the fact that laboring men in some quarters have been subjected to unfair treatment, and they cannot have ultimate triumph for their cause unless they themselves treat others fairly. They need the support of public opinion. Their very power of cohesion comes from the conviction among the best of their own members that their cause is just. They will certainly lose this power if they cannot satisfy the consciences of the just men in their own ranks.

There are two or three solutions of the question of the relations of men to their employers which deserve attention here. One is the provision in every mill of a sliding scale, which shall be arranged once a year, and shall settle the question of the rate of wages without discussion or appeal. This works well already in certain divisions of the iron industry, and no doubt could be made to do so in the textile industries. The only objection to it that can be offered is that prices sometimes go so low that if wages followed them the workmen could not live. In these cases, the employer must pay living wages without regard to the scale; and the readiness with which employers, working under the scale system, consent to do this, entitles them to the friendly regard of their men.

The principle of arbitration may be regarded as of the highest importance, and that it has not been more generally accepted and practically applied, is discreditable alike to masters and to men. This may be said with-

out giving assent to any of the proposed schemes for providing by law for the establishment of State courts of arbitration. The objections to a fixed court, or to courts selected by State authority upon voluntary solicitation of the parties in dispute, are very strong. A permanent State court of arbitration could have no power other than that which the two parties chose to concede to it. If one of the disputants in a given case declined to submit to the arbitration of the court, no power could compel him to do so, and the court could not possibly enforce any decision it chose to make; for, if the verdict were against the workmen, they could simply decline to go to work; and, if it were against the mill-owner, he could shut down his mill; and in neither case could any such court, or any legislative authority, compel acquiescence in a distasteful decision.

The only hope for the success of the principle is in its voluntary acceptance by both parties; and, if there is such acceptance, the end could probably be reached in a more agreeable manner by reference of the dispute to a tribunal of ordinary citizens selected by the parties themselves. Any interference in the matter by the government is likely to be either useless or hurtful.

The coöperation system supplies a method of disposing of labor troubles which will probably be tried more frequently in the future than in the past. The admission of employed persons to a direct interest in the profits obtained by their employers must, of course, depend upon the generosity of the latter; but there are few lines of textile industry into which workmen may not enter upon their own account.

It is quite possible for a few skilled workmen, who have saved a little money, to form a company for the manufacture of articles which they have been used to make, and, by beginning in a small way, to become their own employers, securing the whole of the profits. Where this is really practicable, it is surely much wiser than to indulge in strikes. There was enough wage money wasted by the strike of the ingrain-carpet weavers in Philadelphia, one year ago, to have sufficed as capital for half a dozen coöperative concerns. There has been lost in New England, within a twelvemonth, in similar strikes, money sufficient to put many such companies upon their feet. A strike, resulting in prolonged idleness, is a dead loss. It throws away much to get little or nothing. When a group of workmen do not like the position in which they find themselves, as laboring for others, the rational thing to do is to band together to work for themselves. This not only puts them in a better position, but it saves waste, avoids strife and ill-feeling, and removes the temptation, so strongly presented in every strike, to interfere with the rights of the workmen who are not dissatisfied. The former is not only sensible but lawful. The latter is certainly foolish, and it is apt to be lawless.

It is worth while to say in this connection that the recent removal by the Legislature of the tax upon corporations has not only been of general benefit to the manufacturing industries of the Commonwealth, but has made easier the organization and the success of coöperative societies.

It is gratifying to report that an experiment in coöperative manufacture has been made in Philadelphia during the past year and with every prospect of success.

The Frankford Coöperative Manufacturing Company was established on the 30th of July, 1885, in Frankford, Philadelphia, by certain textile workmen who were dissatisfied with their wages. This company makes a specialty of Turkey red damask fabrics for table-cloths, napkins, &c. It is owned and controlled by the workmen, and it has found a ready market for its products, constant employment for its people, and a good return for its invested capital. The concern is a limited company, with a capital not to exceed $20,000. Of this amount, $6,700 were subscribed, and a perpetual charter was obtained. The number of members is sixty-five; of these, twenty-one are weavers, and eighteen of these latter are at work in the establishment. The par value of the shares is fifty dollars. The secretary alone, among the officers, receives a salary. The arrangement of the board of directors is that one member drops out every three months, but he may be immediately reëlected. The society is now running twenty "clipper" looms. Any competent weaver, buying shares and entering upon the work, can average two dollars a day wages with prices as they are at present. It is believed by the officers that twelve per cent. upon the total investment will be earned the first year. The accounts are made up and submitted quarterly. The total plant is estimated to be worth $10,000. The concern will ultimately make fabrics of a superior grade.

It may be hoped that the influence of this example will be widely felt in the city and throughout the State. To this end, the trades-unions might fairly exert their influence. The discontented workman who leaves his own employer subjects himself to the double experience of the laborer and the capitalist, and this may operate to soften the feeling with which he is apt to regard the latter.

Worsteds and Woolens.

The manufacture of worsteds is of comparatively recent introduction to this country, and it has met with a very fair degree of success. During the year, two or three large worsted mills were constructed in Philadelphia, all of them virtual enlargements of establishments already existing. Mills in other places, notably the fine mill at Conshohocken, were also enlarged, and, in some cases, received additions of machinery.

In some of these factories are made fine cloths which are not surpassed anywhere in the world in texture, luster, design, and general elegance. But the mills producing such cloths still labor under the difficulties imposed upon them by an unfortunate, and, it is contended, unjust interpretation of the tariff act. Under this interpretation, worsted cloths, the very highest and most costly cloths made from wool, are brought in here, in the gray, at lower rates of duties than are imposed upon inferior woolen cloths.

eighteen to twenty-four cents a pound. This arrangement naturally operates to paralyze what promised to become the most important of all American woolen industries.

The following figures will convey some notion of the effect of this interpretation upon worsted coatings. The figures represent the importations of these fabrics before and after the present tariff went into operation in July, 1883:

Fiscal years 1882–1883,	$878,522 86
Fiscal years 1883–1884,	2,177,038 37
Fiscal years 1884–1885,	2,532,272 73

The matter has a larger interest than may at the first glance appear, because every yard of such stuffs brought in here from abroad represents a yard less made and paid for in an American mill; and thus it affects not only spinners, weavers, dyers, makers of machinery, &c., but the farmers whose wool would be consumed if the fabrics should be produced here. We imported during the last fiscal year wool valued at $8,879,923, and manufactures of wool valued at $35,776,559. Thus the imports of wool manufactures were four times greater in value than the imports of raw wool. It is estimated that one hundred million pounds of wool, an amount equal to one third of our domestic supply, were used in making the woolen goods we bought abroad last year. Thus it will be seen that the American wool-grower has a very positive interest even in the matter of the discrimination of the tariff against American worsteds.

In this connection there is opportunity to assert that there is no feeling of hostility on the part of the woolen manufacturers of Pennsylvania to American wool-growers. The public journals which continually assert that the former wish for removal of the duties on wool, so that they may have free raw materials, grossly misrepresent the fact. The manufacturers clearly comprehend that the protective system cannot endure unless it has the support of the agricultural class, and they admit that the farmer has as good a right to protection as the manufacturer. What the latter asks is, not that the duties upon wool shall be removed, but that the duties upon fabrics shall be so arranged as to give them as much protection as the wool-grower has. In other words, that the duties on cloths shall be large enough to put them, in this market, in just the same position as that occupied by the foreign manufacturer, who gets his wool free. This is a just demand, and it ought to be conceded.

The production of worsted yarns, not having encountered the tariff obstacle alluded to above, has been carried on here with great briskness. These yarns are used in cloths, jerseys, hosiery, carpets, braids, &c., &c.

It may be stated, for the benefit of the unlearned reader, that the distinction between worsted and woolen yarns is that the wool in the former Thus cassimeres, and other forms of woolen cloths not made from worsted, are subject to a specific duty not lower than thirty-five cents a pound;

whereas worsted cloths, not dyed or finished, come in at rates ranging from has been *combed*, while in the latter it has merely been carded. Greater parallelism of the fiber is secured by the combing process.

The demand for worsted yarns during the year was constant, in spite of the dull times, and prices were slightly advanced, with increasing inquiry. All the indications are of the more liberal use of worsteds for woolen garments, and the opinion may be hazarded that the rapid growth of the industry under favorable tariff conditions would be certain.

In its behalf must be said that the best spinners of worsted usually prefer our domestic wools, and thus the success of the industry is full of promise for Americans in more than one direction.

During the summer of 1885, the wool market in this country displayed extraordinary activity, and from August to October the business done was large almost beyond precedent. This, no doubt, was the result of a general conviction that the demand for fabrics would be somewhat quickened, a conviction largely justified by subsequent events. It is, however, a curious fact that the stimulation of the market had little or no effect upon prices, so that late buyers were placed at small disadvantage with respect to the earlier buyers.

The manufacture of woolens of various kinds and classes suffered with other interests in the earlier months of last year, and then shared in the improvement that occurred. There is a great production in Pennsylvania of what may be called low-grade woolens, goods made of inferior wools and of wool and cotton. The consumption of these fabrics, many of them strong in texture, attractive in design, and tasteful in finish, is very large. Of the middle and higher grades of suitings and fancy cassimeres there is a vast manufacture, and the tendency is steadily toward improvement of the products. There are mills in the city and State which turn out various kinds of men's wear in quality and quantity far surpassing anything that was known among Pennsylvania mills a few years ago; and many of these fabrics will bear close comparison with the most excellent goods brought here from England and France. The designs are often of European origin, but some of the large mills have their own designs and use their own patterns exclusively.

The manufacture of women's dress-goods of worsted, of worsted and wool, wool and silk, and worsted and silk, has had notable development in Philadelphia within a very recent period. Some of these fabrics are, in their structure, the result of unaided American ingenuity, and the cases are not rare where they have found very highest favor with the most exacting consumers, the fashionable women who haunt the great retail stores. In the processes of finishing such fabrics Philadelphia has no rival in this country. It is not an exaggeration to say that tens of millions of yards of stuffs are sent here annually, from other parts of the country, to be dyed and finished ; while large quantities of fabrics are brought hither from Europe to have the completing processes put upon them.

Other branches of woolen manufacture, largely conducted in this State, such as of blankets, shawls, etc., do not require more than incidental mention.

Cottons.

The cotton manufacture showed no signs of revival during the year until late in the autumn. In the early summer it was so much depressed, even in the favored South, that a strong effort was made by some of the Southern manufacturers to persuade all the Southern mills to shut down for a considerable period so as to bring the supply within the range of the demand. This movement, however, failed, and prosperity returned at a later period without the assistance of such artifices. When the general business of the country improved, the cotton manufacture also showed signs of improvement, and Philadelphia and vicinity, along the center of a great cotton-cloth industry, obtained a share of the benefit. This was not so large as to warrant exultation. The best that can be said of the situation is that at least the products of the mills could be marketed without much difficulty.

A good many mills that had been closed for months were put into operation in the fall, and they have run along without serious interruption ever since. The market seems to be capable of taking and distributing all the checks, shirtings, tickings, prints, ginghams, cottonades, coverlets, towels, damasks, jeans, &c., that the mills are turning out; although there was not last year, nor is there now, the slightest indication of anything approaching a "boom" in the business.

The truth probably is that stocks in store all over the country were cut down nearly to nothing, and then there was also a better demand following upon the slight increase of the activity of the general business. It is noteworthy, also, that about fifty thousand more packages of cotton were exported in 1885 than in the preceding year.

The margins of profit for the manufacture of cottons were, in all cases, very small. Few lines showed any improvement in price over the preceding year, and, in many instances, prices were actually lower than they were in twelve months previous. This decline, however, was measurably offset by the comparative cheapness of the staple. Raw cotton declined in price considerably during the year. It did not respond to the increase of activity in business, and, in the early months of the present year, it is said to have touched the lowest figures reached during more than a quarter of a century.

One of the manufacturing centers that was among the first to feel the improvement, in this quarter in the cotton trade, was Manayunk, where (as was reported in this volume in such detail last year) there had been great suffering among the operatives, because of the idleness of the mills. Some of the largest of the cotton-mills in that place went into operation as soon as there was any movement toward better things, and their example was followed by certain of the smaller establishments; so that it may be said that the strain at Manayunk has been nearly, if not wholly, relieved.

It is proper to say just here that the manufacturers of that town now have what may fairly be regarded as a serious grievance. Several of them have been convicted in the courts of carrying their drainage into the Schuylkill river. Sentence has been deferred, and the penalties held over them with the understanding that if they shall put another particle of refuse matter into the stream, they will be sent to prison. In the meantime the city is slowly constructing a sewer to accommodate these persons and others, but the sewer is not nearly completed, and fears are entertained that it will be of little use to the mills when it is completed. Thus the mill owners, being excluded from the river, and having no sewer, have no drain at all, and must either dig wells, one after the other, or suspend operations. But, while they are in this strait, the entire surface drainage of the filthy town, and of all the other filthy towns along the valley, pours into the stream, and *will* pour into it for the reason that the Creator of the universe put the river there so that it might drain the valley. The manufacturers rightly consider it a hardship that, after the river has been used for drainage purposes for years, they should suddenly be cut off from it without having a substitute supplied to them.

Carpets, &c.

Of the twenty or thirty new textile-mills constructed in and about Philadelphia during the past year, ten or twelve were carpet-mills. Some branches of this industry had a rough time with labor troubles, involving disputes about wages, and the prices of all grades of carpets were much less satisfactory to the producers than they should have been. The total output, however, was probably in excess of that of any previous year, and that the business has healthful growth is indicated by the multiplication of mills and by the additions to the old mills. There is no sign that Philadelphia is to lose any part of the supremacy she now has as the greatest center in the world for the manufacture of carpets. She still produces large quantities of ingrains upon hand-looms, while her velvets, Wiltons and Axminsters are unsurpassed in loveliness of design and excellence of quality.

If there is anything of special interest to note concerning the movements of this industry during the year under review, it is, perhaps, the development of a stronger inquiry from consumers for Brussels carpets. It is clear to careful observers that more people are seeking the floor-coverings of higher price, quality, and durability; that persons who heretofore have used only ingrains now desire carpets of the next higher grade. It is in this direction probably that the carpet industry is to have its greatest development.

Kindred to this business is that of making rugs and other floor-coverings, not strictly classified with carpets. It is said that the first Smyrna rug, so called, was made in Philadelphia only as lately as 1877. We have no figures to indicate the present proportions of the business, but any

truthful computation would give surprising results. There are mills in Philadelphia running from six hundred to eight hundred looms upon these goods, and the number of mills running from thirty to one hundred and fifty looms is very large. The rugs are made after Oriental patterns, which are not only closely imitated, but, in many cases, varied and improved upon. The colorings usually are delicate, tasteful, and beautiful. The rugs are made in all sizes, from that sufficient for a mere foot-mat, to dimensions great enough to cover the entire floor of a moderately large room. Experience has shown that in durability they are unsurpassed, while, as attractive objects to look upon, they are often equal to the costliest Oriental carpets.

The value of this industry to the country, in an economical sense, is obviously very great, but it has still other uses: First, perhaps, as showing the natural skill of Americans in inventing and pushing to success a new line of manufacture; and, second, as a means of carrying even into humble homes things that are beautiful, and so effective educators of popular taste. The prices of these goods are, everything considered, low. A handsome Smyrna rug is within the reach of every man but the very poorest.

Reference to this manufacture leads naturally to that of curtains and upholstery goods, which employs much machinery and many workmen in Philadelphia. There are produced here so-called Turcoman curtains, a chenille fabric, of every texture, finish, and price; and furniture coverings of wool, silk, jute, and tinsel, in like variety. These fabrics are fast replacing the imported goods in the stores, and usually they have quite as much merit as the best of the latter. There is also a considerable manufacture of "Madras" curtains, a lace effect woven with a pattern in colored materials.

The mills making all of these goods were fairly occupied during the year, and in many cases were encouraged to acquire more room and additional machinery.

Silk.

One of the noteworthy textile movements in this State is that for the establishment of silk-mills in various towns in the Commonwealth. During the year, enterprises of this kind have been promoted in Bethlehem, Allentown, Mauch Chunk, Easton, and Stroudsburg, and similar undertakings are promised in Reading and some other places. The following is said to be an explanation of these movements. Only the preparatory processes of silk manufacture are performed in these establishments, and for them cheap labor is required:

"In the mining and iron manufacturing towns of Pennsylvania there is plenty of employment for the men but little for boys and girls. To provide work for the latter and build up their towns, Pennsylvanians offer to put up silk-mills and exempt them ten years from taxes. The occupants take the mills on an agreement to pay interest on the cost of the mills in

lieu of rent, with the privilege of buying the mills at cost at the end of the ten years. The occupants then get girls and boys at one dollar and fifty cents per week, to whom they would have to pay four dollars and fifty cents in Paterson. Of course, only that part of the work requiring unskilled labor can be transported from Paterson to Pennsylvania, because there are no skilled silk-workers there. With the exception of the instructors, not a skilled operative has yet left Paterson. The first Paterson manufacturers to start an annex were Dexter, Lambert & Co., who put up a spinning or throwing-mill at Hawley, Pennsylvania. The saving in expenses gave them an advantage over other manufacturers, and to compete with them the Phœnix Manufacturing Company started an annex in Allentown; Pelgram & Meyers, in Boonton, New Jersey; C. E. Meding in Mauch Chunk, and in other places where they could hire young girls at low prices."

In Philadelphia, however, there is a large silk industry of a very different and more profitable character. It is that for the production of silk fringes and trimmings, silk plushes, silk knit-goods and fabrics, such as curtains, of which silk-fiber is one of the constituents. This business is rarely carried on in large mills, but it produces every year a vast quantity of material in which the element of taste enters to an unusual extent. It pays fairly good wages, obtains excellent prices for its products, and contributes largely to the total value of our textile industries. It is one of the branches of business which very clearly demonstrates the capacity of American cities for meeting the nicest requirements of refined taste and of constantly varying fashion.

This is a business that owes everything to the protective tariff. The raw silk is admitted free of duty, and a duty sufficiently large to permit manufacture at a reasonable profit is placed upon the fabrics. The result is that American silk manufactures are not only the purest in the world, but, in beauty of coloring, finish, and design, they fairly rival the best products of the looms of France; and, meantime, prices are not larger than is reasonable, considering that silk may be regarded as an article of luxury.

It ought to be said here that the very creditable efforts made to encourage the cultivation of the silk-worm in this country have had only partial success thus far, and there would appear to be no reason for expecting any considerable development of the home supply of raw material at an early period.

Knit Goods.

One of the most prosperous of the textile industries in Philadelphia and vicinity during 1885, was the business of manufacturing knitted fabrics. The year witnessed a considerable increase of the number of establishments (most of them small) and of the machinery employed. The largest development was probable in the manufacture of seamless hosiery. The demand for these goods, which are consumed chiefly by other classes than

the most affluent, is constant and increasing. The manufacture of them requires but a small investment of capital, for the machinery costs little, and the possible profits tempt many men of limited means to engage in the business. In some of the higher branches of the industry, also, there has been notable activity during the year. The Jersey garments retain their popularity, and the makers of both the cloth and the garments have found no difficulty in marketing all the grades of fair quality produced. Not a little graceful ingenuity has been exhibited in the diversification of the fabrics and in the decoration of the garments, so that the Jersey now appeals to a wider range of popular taste than ever.

The manufacture of stockinet, a kindred material, of much heavier substance, is confined to a small number of mills working under a royalty system, as the fabric is protected by a patent.

These establishments have all done a fairly good business, and have had little reason to complain of the hard times.

The success of the Jersey manufacture has had the effect, no doubt, to relieve the makers of other knitted materials from too close competition, and so all have been benefited. The production of Jerseys is confined chiefly to Philadelphia, and the consequence is that the knitting industry here has suffered less from depression than it has in other quarters. The manufacture of underwear, which is not pursued to any extent in this city, has felt the hard times more than any other branch of the business, for it has had the benefit of no such diversion as that alluded to. The industry here includes the fabrication of fashioned hosiery, scarfs, nubias, shawls, cardigan jackets, hoods, and various other outer garments made from wool and worsted, and silk garments of various kinds. Almost without exception the mills so engaged had reasonable prosperity last year.

Of course, the activity of the manufacturers of fabrics resulted in busy times for the makers of machinery, and, during the year, the shops producing knitting machines of all kinds were fully employed. Not only this, but large numbers of machines made in other States were sold here to our manufacturers.

Quite a number of improved machines, and of improvements upon old machines, were introduced to this market during the year, the tendency being constantly toward making the product better while the cost is reduced.

Even those persons living in Philadelphia who are not brought into contact with this industry little realize its magnitude and importance; and the continued movement of the builders of machinery and the knitters toward the production here of machines and fabrics which will make us independent of foreign sources of supply.

Textile Machinery.

The manufacture of textile machinery in Philadelphia includes the production of machines for performing all, or nearly all, of the processes in

every branch of the industry. The range of this machinery extends from the smallest and cheapest knitting machine upward to the most complicated apparatus for the creation and completion of the finest tissues of cotton, silk, and wool. It embraces machines for preparing raw stock, for spinning, weaving, dyeing, finishing, and rolling fabrics. These machines are sold in large quantities within the State; even more extensively in the South and West; and to no inconsiderable extent to the mills of New York and New England. The knitting machinery made here is sent to every part of the world, and is in favor wherever it is in operation. The widest distribution of this apparatus of course is given to the low-priced machines for the production of cheap goods.

Many of the textile machine shops in Philadelphia are very large, and and all but two or three of the largest, which are conducted by corporations, are controlled by private firms. Some of them have patented specialties of great value, and during the past year these have had additions by the introduction here of European machines brought hither to be made under royalty systems.

This industry of course suffered from the prevailing depression last year, but the total business done was large, and the effects of the revival of trade were felt promptly, and with encouraging results. The makers of knitting machines had decidedly the best of the trade, owing, as has been said, to the exceptional prosperity of the knitting industry; but the manufacturers of general machinery, as a rule, did tolerably well, excepting in the dullest of the early months of the year. New England is the great center of the textile machine industry in this country; and it is not a little creditable to the Pennsylvania shops that they have been able fully to hold their own not only in this quarter and in the South and West, but among the mills of the Eastern States. The present outlook for this industry may be declared to be very encouraging.

Miscellaneous.

A branch of textile manufacture which has of late been introduced to this city is the making of plushes. There are but two or three establishments, as yet, that have undertaken to make these goods, and but one that has done so upon a large scale. In this more than one million dollars are said to be invested, and the proprietors have recently obtained exclusive use in this country of some European machinery from which superior results are received. This concern makes silk and mohair plushes for carriages, car-seats, curtains, and clothing purposes. They are made in great variety of colors and textures, and are admitted to possess all the qualities that are to be derived in such goods.

In other quarters mohair, and mohair and silk are made into fabrics which imitate sealskin and other furs ; and in still others, plushes of low grades are made for use upon cheap furniture. The future of this plush manufacture will, probably, be great.

Of the manufacture of ready-made clothing, shirts, women's cotton undergarments, men's overalls, etc., etc., no statistics of late date are available; but these things employ millions of capital in and about Philadelphia and many thousands of work people. The goods are taken up, not only by our own home market, but are sent in large quantities to other parts of the country, particularly to the South and West. Reference to them may properly be made in a report upon the textile industries of the State, although this report must deal chiefly with the processes that do not go much beyond the loom. There are clothing factories in Philadelphia which send their wares to the ends of the earth.

It ought also to be said that the manufacture of dye-stuffs, an industry dependent upon textile manufacture, is carried on here to a large extent, the business, however, being wholly unconnected with the production of the popular aniline dyes.

Kindred to this is the production of vats and tubs used in the dye-houses of the textile mills. This is an important industry in Philadelphia. The shops making the tubs find their customers all over the country, and very largely in New England.

The Textile School.

The Textile School, connected with the School of Industrial Art, at No. 1336 Spring Garden street, Philadelphia, (alluded to in this report last year,) has made such progress that it may now with confidence be pronounced the best of its kind in the country. During the year it added a new building, forty feet by twenty-four feet and three stories high, in which the looms have been placed. The general director is Mr. Theodore C. Search; the principal, Mr. L. W. Miller; and the instructors, Mr. Eugene A. Posselt, from the government weaving school of Reichenberg, Austria; Mr. John F. Lee, from the technical school, Bedford, England; and Mr. E. W. France, of Lawrence, Massachusetts. The fees are fifty dollars a year for the day classes, and fifteen a year for the evening classes. Practical instruction is given in designing, weaving, and management and care of machinery. There are two day sessions, from nine to twelve in the morning, and from two to four in the afternoon. The evening session is two hours long. The mechanical equipment now consists of a Crompton loom, a Murkland carpet loom, a Knowles loom, a Bridesburg loom, several smaller looms, and a Jacquard machine and card-cutter from W. P. Uhlinger's shops. The whole of this machinery was given to the school and is the best of its kind.

This excellent institution, supplying trained designers and skilled workmen to one of the greatest of Pennsylvania's industries, deserves liberal consideration from the State government, that its capacity and the general range of its instruction may be enlarged.

TEXTILE FABRICS.

Carpets.

COUNTY.	Number of establishments.	Average number of days in operation.	Number of persons employed.	Amount paid in wages.	Number of spindles.	Number of looms.	Value of product.
Philadelphia.							
Total, 1885.	107	276	10,299	$3 436 525	28,195	5 127	$14 359.889
Total, 1884,	140	240	8,226	2,920 476	23,208	6 420	14,627,543
Increase,		36	2,073	$516,049	1 987		
Decrease,	33					1 293	$267 654

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $333, or an average of about $6 40 per week.

Carders.

Armstrong,	1	90	3	$18	160		$2,225
Clarion,	1	100	1	80			1,050
Fulton,	1	200	2	200			4,000
Perry,	1	150	1	150			500
Wayne,	2	175	8	850			5 200
Total, 1885,	6	175	15	$1,298	160		$12 975
Total, 1884,	2	210	7	1.750			25,120
Increase,	4		8				
Decrease,		35		$452			$12 145

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $86, or an average of about $1 65 per week.

Cotton.

Berks,	1	152	219	$22,013	15,800	300	$49,000
Delaware,	13	300	2.009	569, 832	112.380	2,152	2 121, 932
Lancaster,	5	296	1,267	330,012	46 168	1 043	1.178 910
Montgomery,	4	283	488	100.074	37 116	386	407, 885
Northampton,	1	270	190	34 000	8 000	300	150,000
Philadelphia,	24	240	2,552	815, 972	41 850	4 944	3,038,502
Total, 1885,	48	265	6,725	$1,871 903	261. 314	9,125	6,946 279
Total, 1884,	81	271	10,145	2 688, 243	284 467	12,736	10, 571, 143
Decrease,	33	6	3,420	$816 340	23,153	3,611	$3 524, 864

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $278, or an average of about $5 34 per week.

Cotton and Woolen.

Berks,	1	255	58	$20. 316	1 008	60	$92. 000
Delaware,	4	300	642	190 314	22, 848	681	553 202
Montgomery.	1	310	44	13, 746	1 065	50	50, 574
Philadelphia,	36	290	4,606	1,489,151	48, 102	5,630	5,571,822
Total, 1885,	42	288	5,350	$1,713 527	73 023	6,421	$6,267.598
Total, 1884,	31	269	3 849	1,166,072	54 793	4,482	4 857,516
Increase,	11	19	1,501	$547,455	18,230	1 939	1,410,082

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $320, or an average of about $6 15 per week.

Dress Goods.

COUNTY.	Number of establishments.	Average number of days in operation.	Number of persons employed.	Amount paid in wages.	Number of spindles.	Number of looms.	Value of product.
Columbia,	1	300	40	$8 477	840	10	$53 000
Philadelphia,	3	293	542	223 000	5,260	228	1,350,000
Total,	4	296	582	$231,477	6 100	238	$1,403,000

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $397, or an average of about $7 63 per week.

Felt Goods.

Philadelphia,	1	283	24	$11,292	. . .	. .	$42,926

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $470, or an average of about $9 09 per week.

Hosiery and Knit Goods.

Bucks,	2	300	435	$120,000			$350,000
Lancaster,	1	295	32	5,133			19,432
Luzerne,	1	270	115	31,810	960		147,532
Montgomery,	1	300	150	20,000			75,000
Philadelphia,	74	300	10.701	2 772.265	13 559	853	10.702,867
Total, 1885,	79	275	11 433	2 949 208	14 519	853	$11 294. 831
Total, 1884	87	233	10.497	2 471 776	11,998	282	9,793,004
Increase,		42	936	$477 432	2 521	571	$1,501,827
Decrease,	12						

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $256, or an average of about $4 92 per week. In 1884, the average was about $235 per man, or about $4 52 per week.

Jeans.

Philadelphia,	4	290	168	$71,637	4,791	256	$249 670

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $420, or an average of about $8 07 per week.

Print Goods.

Montgomery,	1	300	200	$41,317	. .		$150,000
Philadelphia,	2	310	756	236,119	. .		1,125,857
Total,	3	305	956	$277,436	. .	.	$1,275,857

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $290, or an average of about $5 57 per week.

Shawls.

Philadelphia,	5	270	312	$9,224	. . .	119	$549,151

NOTE.—The average annual wage fund if divided share and share alike, would give to each employee about $318, or an average of about $6 11 per week.

Shoddy.

COUNTY.	Number of establishments.	Average number of days in operation.	Number of persons employed.	Amount paid in wages.	Number of spindles.	Number of looms.	Value of product.
Delaware,	2	305	34	$16,225		.	$50,000
Philadelphia,	4	300	53	16,058			127,190
Total,	6	302	87	$32,283			$177,190

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $370, or an average of about $7 11 per week.

Silk.

Lackawanna,	1	300	120	$20 000	7,000		$60 000
Lehigh,	1	300	700	120,000	32 800	247	450 000
Philadelphia,	3	300	338	121 343	4 314	119	660,000
Wayne,	1	300	350	100.000	22,000	112	300,000
Total,	6	300	1,508	$361,843	66,114	478	$1 470,000

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $239, or an average of about $4 59 per week.

Turkish Towels.

Philadelphia,	4	300	209	$69,968	. .	230	$231 590

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $334, or an average of about $6 42 per week.

Woolen.

Adams,	1	300	6	$1 000	180	2	$3,000
Armstrong,	1	260	32	13,821	960	14	41,038
Beaver,	1	210	8	1,600	288	6	5,000
Bedford,	4	295	35	8 005	660	15	30,900
Berks,	2	261	102	28 523	2 560	67	197,002
Bucks,	3	275	224	102 600	642	7	508 900
Butler,	2	156	20	2,381	820	9	10,000
Cambria,	3	286	316	59 338	520	83	280,613
Centre,	1	195	16	2 760	600	12	14 860
Chester,	3	300	142	39 250	1 520	32	197,200
Clarion,	2	270	17	4 025	80	8	21,500
Clearfield,	1	220	10	2 200	220	5	7,200
Clinton,	1	250	14	2 400	600	6	12 900
Columbia,	2	154	11	622	560	6	8 500
Crawford,	2	190	13	2,060	456	6	11,900
Cumberland,	2	250	7	901	302	9	3 000
Dauphin,	1	300	8	1,700	216	9	5 000
Delaware,	5	298	730	245 058	18 239	570	922,524
Erie,	2	200	16	2 050	440	7	15,000
Fayette,	1	150	3	150	150	3	500
Franklin,	4	202	95	19 507	2 232	35	75,900
Greene,	2	175	8	275	276	4	2 211
Huntingdon,	1	190	5	500	240	5	4 000
Indiana,	2	220	21	4 944	552	5	22 300
Jefferson,	2	217	19	4 605	726	10	17 100
Juniata,	1	208	3	170	192	4	800
Lackawanna,	1	250	8	500	240	3	8 000
Lancaster,	4	300	30	5 620	1,178	34	25,279
Lehigh,	2	260	82	13,600	240	14	40 000
Luzerne,	1	300	5	760	312	3	7,000
Lycoming,	4	260	115	28 100	3,724	36	244 000
Mercer,	1	153	30	5 355	930	10	24 713
Mifflin,	3	256	32	5,975	1,100	19	38 500
Monroe,	1	300	120	39,821	1 500	28	212.075

Woolen—*Continued.*

COUNTY.	Number of establishments.	Average number of days in operation.	Number of persons employed.	Amount paid in wages.	Number of spindles.	Number of looms.	Value of product.
Montgomery,	3	278	245	$65,798	3,176	204	$270 781
Perry,	2	200	6	520	328	7	4 000
Philadelphia,	11	300	4,414	1 488,238	46,052	1,529	6,643 677
Potter,	1	100	3	206	144	2	2 000
Schuylkill,	1	250			180	4	3 000
Somerset,	3	300	24	5 900	582	16	28,500
Sullivan,	1	200	5	700	240	1	2,000
Susquehanna,	2	200	9	875	480	10	5,213
Tioga,	1	200	3	250	220	3	1,580
Union,	1	302	44	11,819	2 160	15	81 000
Venango,	1	220	10	1 660	180	4	6,500
Warren,	1	265	14	2 621	480	8	7,000
Washington,	2	225	16	3,894	312	6	20,285
Wayne,	1	280	47	10 400	780	12	50,000
Westmoreland,	1	151	10	1,300	360	7	6 067
York,	4	275	30	5 536	1,264	15	21,200
Total, 1885,	105	250	7,173	$2 249,993	100.337	2,929	$10 171.188
Total, 1884,	108	250	6 662	1,890,015	93,379	2 338	8,773,678
Increase,		.	511	$359,978	7,008	591	$1,397,510
Decrease,	3	.					

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $310, or an average of about $5 96 per week. In 1884, it averaged about $286 per employee, or about $5 50 per week.

Worsted Goods

Chester,	1	309	125	$36,000	2,160	137	$70,000
Montgomery,	3	288	632	201,900	11 880	146	1,357,384
Philadelphia,	3	304	1,244	542,005		55	2,683,650
Total, 1885,	7	300	2,001	$779,905	14,040	338	$4,111,034
Total, 1884,	15	296	2,400	696,938	25,372	790	3,413,968
Increase,		4		$82,967	. . .	. .	$697,068
Decrease,	8	. .	399	. .	11,332	452	

NOTE.—The average annual wage fund, if dlvided share and share alike, would give to each employee about $389, or about $7 48 per week. In 1884, it averaged about $290, or about $5 57 per week.

Yarns.

Bucks,	2	300	352	$92,712	10,648	.	$613 381
Chester,	1	102	6	629			11,220
Delaware,	9	300	716	187,589	30,786	100	1,208 079
Lancaster,	1	250	5	1,200	240	. .	6 500
Lawrence,	1	225	7	1,500	270		7,000
Philadelphia,	63	300	5,377	1,574,673	169,369	98	10,674 569
Somerset,	1	300	6	864	264	2	6.677
Total, 1885,	78	253	6,449	$1,859,167	211,577	200	$12 527,426
Total, 1884,	104	217	6,461	1,796,608	250,550	202	11,828,529
Increase,	.	36	. .	$62,559		. .	$698.897
Decrease,	26	.	12	. .	38,973	2	

NOTE.—Tbe average annual wage fund, if divided share and share alike, would give to each employee about $288, or an average of about $5 54 per week. In 1884, the average was about $278 per employee, or about $5 34 per week.

MANUFACTURES—MISCELLANEOUS.

Clothing.

COUNTY.	Number of establishments.	Average number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Philadelphia,	20	300	3 820	$1,225,186	$5,317,961

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $320, or an average of about $6 15 per week.

Coverlets.

Lancaster,	2	300	13	$3 650	$21 000
Philadelphia,	7	280	196	63,266	251,298
Total,	9	295	209	$66,916	$272,298

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $320, or an average of about $6 15 per week.

Dress Trimmings.

Philadelphia,	11	300	2,056	$593,392	$2,961,671

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $298, or an average of about $5 53 per week.

Dye Works.

Philadelphia,	29	300	1,322	$611,146	$1,934 203

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $462, or an average of about $8 88 per week.

Hats and Caps.

Berks,	12	265	732	$229,009	$1,042,204
Lancaster,	3	240	102	23,000	117,000
Philadelphia,	24	278	1,606	781 132	1,989,503
Total,	39	262	2,340	$1,033,141	$3,148,710

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $441, or an average of about $8 48 per week.

Lace Goods.

Philadelphia,	7	300	298	$66,913	$239,760

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $224, or an average of about $4 30 per week.

Upholstery Goods.

Philadelphia,	14	300	1,271	$466,269	$1,749,256

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employee about $366, or an average of about $7 03 per week.

TEXTILE INDUSTRIES.

TABLE *showing the rate of wages paid, if the annual wage fund was divided share and share alike to each employee; the number to whom wages are paid, and the average number of days employed during the year ending December 31, 1885. Compiled from the reports of employers made to this Bureau.*

INDUSTRIES.	Number of employés.	Weekly wages.	Average number of days employed during the year.
Carpets,	10,299	$6 40	276
Carders,	15	1 65	175
Clothing,	3,820	6 15	300
Cotton,	6 725	5 34	265
Cotton and woolen,	5,350	6 15	288
Coverlets,	209	6 15	300
Dress goods,	582	7 63	296
Dress trimmings,	2,056	5 53	300
Dye works,	1,322	8 88	300
Felt goods,	24	9 09	283
Hats and caps,	2,340	8 48	262
Hosiery and Knit goods,	11 433	4 92	275
Jeans,	168	8 07	290
Lace goods,	298	4 30	300
Print goods,	956	5 57	305
Shawls,	312	6 11	270
Shoddy,	87	7 11	302
Silk,	1,508	4 59	300
Turkish towels,	209	6 42	209
Upholstery goods,	1,271	7 03	300
Woolen,	7.173	5 96	250
Worsted goods,	2,001	7 48	300
Yarns,	6,449	5 54	253
Total number of employés,	64,607		

THE GLASS SAND INDUSTRY OF THE JUNIATA VALLEY.

By WALTER G. AFRICA, *Huntingdon, Pa.*

To General John McCombe* belongs the credit of directing the attention of the glass manufacturers of Pittsburgh to the value of the sand rock of the Juniata valley for glass making. The first shipment was made by him in a canal boat from Rocky Ridge, in the vicinity of Montgomery's lock, in Brady township, Huntingdon county, and consisted of rock broken into pieces convenient to handle. General McCombe continued in the business at intervals for several years either as an operator or as a lessor of quarries.

Elliott Robley opened a quarry on the ridge nearly opposite Mapleton, in 1858, and for sometime followed the example of General McCombe, of shipping the rock. Pittsburgh was his chief market, and the price ranged from $3 75 to $4 00 per ton. He continued his operation until 1864. After about a year's cessation he resumed, and in 1866, introduced machinery for the purpose of crushing the rock, so that it might be shipped ready for use. The first machine consisted of a set of stampers operated by steam-power, and subsequently an ore or rock crusher was used. The rock was first run through the crusher, and then passed between two iron rollers, each of about six tons weight, and it was thus reduced to the proper degree of fineness. The rollers did not work very satisfactorily, for when a piece of hard, flinty rock entered between them they were either forced apart or the gearing would break. After about a year's experience with the rollers, that process was abandoned, and the stampers re-introduced. The washing of the sand to remove dust and foreign substances was begun by Mr. Robley in 1870. The quarry then operated by him was situated about a quarter of a mile from the Pennsylvania railroad, and considerably above the level of the tracks. After the sand was properly reduced, it was turned into wooden troughs laid from the works to the railroad, through which was run a stream of water that performed the double service of transporting the sand to the place of shipment, and clearing it of impurities. At the railroad the moisture was evaporated from the sand by a dryer invented by Mr. Robley, and which is still used by the Juniata Sand Company.

*Born in the town of Drumore, county Donegal, Ireland, June 20, 1799, and brought up to the trade of carpentry and lock-building. He landed in America, September 13, 1828, went up the Juniata, and was employed in building locks on the Pennsylvania canal, which was then in progress of construction. He died at his residence, below Mapleton, March 13, 1884.

VIEW OF QUARRY OF JUNIATA SAND CO.,
NEAR MILL CREEK, HUNTINGDON COUNTY.

Quarries Now Being Operated.

B. R. Foust & Son, of Mill Creek. L. D. Himes, superintendent.

This quarry is situated on the north side of the Juniata river, between Mill Creek and Mapleton stations, in Brady township, Huntingdon county, The sand is quarried from Rocky Ridge, and is generally hard. The quarry blocks are broken by hammers and wedges into pieces about four or five inches square, which are conveyed in small push-cars about two hundred feet, dumped upon a platform and then shoveled into the crusher. The crusher consists of six stampers, each weighing about eighty pounds, working in a trough, the bottom of which is made of heavy iron bars set so as to leave small openings between them. As the rock is pulverized, the sand falls through these openings into a spout which conveys it to a square screen of wire cloth one and one half by four and one-half feet. The fine sand sifts through the meshes of the screen and falls on a platform, from which it is wheeled about one hundred feet to the cars, on a siding connected with the Pennsylvania railroad. In the winter the rock, on account of the moisture in it, freezes, and cannot be crushed. To overcome this difficulty, it is broken into blocks about a foot square which are laid up with spaces between them, and fired somewhat like the firing of a kiln of brick. The greater part of the sand is shipped without washing, but when washing is necessary, the works are so equipped that this operation can be performed in warm weather. The machinery is driven by an eight horse-power steam engine.

The average number of men employed is thirteen; average wages, $1 25 per day. Amount of glass sand shipped in 1885, six thousand three hundred tons.

Juniata Sand Company.

George M. Franklin and Thomas Baumgardner, of Lancaster, Penna. Thomas M. Logan, superintendent, Mapleton Depot post-office. (See plate.)

The works of this company are situated about one mile south-east of the village of Mill Creek, Brady township, and consist of one double engine of twenty horse-power, with a forty horse-power boiler, driving a Blake crusher making two hundred and fifty revolutions per minute, and a chaser mill, making twenty-five revolutions per minute. The wheels of the latter are four feet in diameter and eight inches thick.

The sand rock is quarried about three hundred feet from the works, and is conveyed to them in push cars. It is then run through the crusher which drops it into the chaser mill. From the mill it is carried by a stream of water through a screen into a box where the water washes over it, and as the sand settles to the bottom it is lifted by a screw twelve feet long to the height of four feet. It is then carried back by the water, then forward again by another screw to a beater, such as is used in washing ore. It is then conveyed one thousand one hundred and seventy-five feet in open

troughs to the dryer, or one thousand two hundred and seventy-five feet to the store-room, on a siding connecting with the Pennsylvania railroad. The dryer consists of a grate or floor made of iron bars about one fourth of an inch apart, and so arranged that the heat from the furnace or fire-box passes under the grate. As the heat dries the sand it falls through the openings to the floor, and is shoveled out and wheeled about one hundred feet to the cars. The water to supply the works is taken from a spring, and is stored in a tank about eighteen rods from the works. This tank holds fifty-two thousand six hundred and sixty-two gallons. The sand that is not dried is taken to a building near the railroad, where the water is allowed to drain off, and it is then wheeled into the cars. All the sand is washed. Both first and second qualities are produced. The capacity of the works is fifty tons per day in warm weather. In the winter operations are suspended on account of the water freezing in the troughs. The average number of men employed, twelve; average wages, $1 25 per day; number of tons shipped during the year, seven thousand six hundred and sixteen.

Mapleton Sand Company, of Mapleton, Huntingdon County, Penna.

Samuel Hatfield, jr., manager.

This company has two works and two quarries. One quarry is a quarter of a mile, and the other about a half of a mile distant from the borough. The works nearest the borough, and southward therefrom, consist of one boiler, one twelve horse-power engine, chaser mill, dryer, &c. The sand is quarried in the form of rock, and broken by hammers to about the size of an egg. It is then transported about an eighth of a mile over an iron tram road to the works, in cars drawn by mules. After it reaches the works, it is first run through the chaser mill. This mill consists of two heavy iron wheels revolving in an iron basin, which has a screen on one side. Water is run into the basin and carries the fine sand through the meshes of the screen into a trough, and thence into a coarse screen. After passing through this screen, the sand and water fall into a box in which runs a screw which carries the sand forward about twelve feet. It is then carried back in a trough by water, then forward again by another screw, and then back again by water. By this process the sand is thoroughly washed, and it is then run into a box from which it is carried forward by drags. A drag consists of a belt six to twelve inches in width, on which are fastened a number of pieces of heavy sheet-iron the width of the belt, and L shaped, so that the short part of the L extends out from the belt. The belt runs along a trough, and the drags or fingers take up the sand and carry it forward. After being carried foward the sand is dropped on a pile, and is ready to be dried or taken to the siding at the railroad. The drying apparatus consists of a number of tubes lying horizontally with a space of about one quarter of an inch between each pair. The tubes are heated by having the draught from the fire pass through them. The wet sand is

placed on the tubes, and as it dries it falls through the apertures. The capacity of the dryer is twenty tons per day. The water used by the works is conveyed to them by gravity.

The other works of this company are situated at the eastern end of the borough, and the quarry is about three-quarters of a mile from the works. The sand at this place is also in rock, and has to be broken. It is conveyed to the works in tram cars holding about two and one-half tons, and drawn by mules. The works consist of an engine and boiler, chaser mill, drags, screws, and washers. The sand is washed thoroughly, but is not dried. The water used in washing the sand is obtained by pumping. The works are located a short distance from the main line of the Pennsylvania railroad, and are connected therewith by a siding, on which the cars can be loaded. The capacity of these works is forty tons per day. Operations were carried on during ten months of the year. Daily production, one hundred tons; monthly, two thousand five hundred tons; yearly, twenty-five thousand tons. Average number of men employed, thirty; average wages, $1 20 per day.

Juniata Sand Company.

George M. Franklin and Thomas Baumgardner, of Lancaster, Penna. A. J. Kuhn, manager.

The works of this company are situated at Granville, Mifflin county, about four miles south-west of Lewistown, on the northern dip of the Oriskany or Meridian sandstone.

A layer of pure white sand from eighty to one hundred feet thick is found at this point, but it is discolored at places by oxide of iron which renders a considerable portion of it useless. The principal part of this sand requires only washing to remove the small percentage of clay which it contains. At the top of this stratum there is a layer of yellow sand about seventeen feet thick. The sand is mined very much like coal. When the mine was first opened it was worked toward the outcrop, but it is now worked about thirty feet lower. The main tunnel extends two hundred and fifty feet, then diverges to the east about a quarter of a mile, and to the west about half of a mile. The main gangways are twelve feet high, and sixteen to eighteen feet wide, and are supported by heavy timbers. The roof over the rooms or chambers is not very safe, but pillars of sand rock have been left standing between the chambers to add to its security. The chambers vary in size from twenty-five by fifty feet to twenty-five by three hundred feet, owing to the direction of the stratum.

The new mine, recently opened, is on a lower slope. The main gangway is two hundred feet long, fifteen feet wide, and fourteen feet high, and the roof is supported by heavy timbers. It also diverges into a number of gangways and chambers. It is necessary to loosen the rock in this mine by blasting. The shock of the blast shatters it into fine sand, and it then needs only to be washed to be ready for market. The sand is hauled from

the mine to the wash-house in cars drawn by mules. Below is an analysis of the sand from these mines, made by A. S. McCreath :

Silica,	98.84
Alumina,	.17
Oxide of iron,	.34
Oxide of manganese,	traces.
Lime,	"
Magnesia,	"
Loss on ignition,	.23
	99.58

In the washing operation the sand is first run through a chaser mill, then the water carries it through an octagonal screen to a box below where it is washed. It is then carried forward by two screws running at an elevation of sixteen degrees. These screws are sixteen inches in diameter, and make from sixteen to eighteen revolutions per minute. The first one carries the sand fifty-six feet. It is then taken up by the second one and carried fifty feet farther, and dropped into a box or hopper where a third screw, running at right angles, carries it about seventy-five feet, the length of the building, to the dry-house. The chaser mill, screws and pumps, which pump all the water used, are propelled by an eighteen horse-power engine.

The dryer, which was patented by A. J. Kuhn, in 1880, consists of two hollow cylinders, respectively four feet and three feet eight inches in diameter, and forty feet long. The smaller one is placed inside of the larger one with a space of two inches between them. The exhaust steam is run into this space, and it makes both cylinders very warm. On the inner surface of the smaller cylinder there are ten projecting flanges arranged spirally to agitate the sand and carry it forward toward the delivery end of the cylinder as the cylinders revolve. The sand to be dried is placed in a hopper in which works a short screw that carries it into the cylinder. It then passes through the dryer and falls on the floor perfectly dry, and ready to be shoveled into the buckets of the bucket tramway.

The works are situated about two hundred feet above the level of the Pennsylvania railroad, to which the sand is transported across the canal and Juniata river, a distance of one and one half miles, on one of Hodgeson's patent tramways. The cable of the tramway is three quarters of an inch in diameter, and is made of the best quality of steel. It is in one length and weighs about eight tons. It is supported by fifty-three piers or trestles, and is propelled by a fourteen horse-power engine. It passes around a large pulley or drum at the works, and another at the building near the railroad. The buckets are filled at the works, and pass along the western side of the piers into the store-house at the railroad, then out and up along the eastern side of the piers. There are one hundred and thirty buckets

VIEW OF BUCKET TRAMWAY.
ACROSS THE JUNIATA RIVER AT GRANVILLE, MIFFLIN COUNTY, PA.

made of galvanized iron, and traveling at the rate of three miles an hour. They have a capacity of from sixty to eighty tons per day. The weight of the loaded buckets keeps the cable drawn taut, and, in passing down grade from the works to the railroad, assists in drawing the empty buckets back. (See plate.)

The cost of this tramway and motive power was between nine and ten thousand dollars. The average number of men employed during the year, thirty; average wages, $1 30 per day; total amount of sand shipped from December 1, 1884, to December 1, 1885, ten thousand tons.

Enterprise Sand Company.

Stevenson & Macklin, McVeytown post-office.

The works of this firm are situated on the north-west side of the Pennsylvania railroad, near Vineyard station, and seven miles south-west from McVeytown station.

The rock is hard, and is mined or quarried in gangways and rooms. The works consist of a chaser mill, screws, and two dryers, of Bradley & Dull's patent. The rock, broken by hammers into small lumps, is run through the chaser mill, and washed by a system of screws. Water for washing is pumped from the canal, a distance of seven hundred feet. A siding connecting with the railroad affords a ready means of shipment. The works have been in operation about five years, and sometimes run day and night. First and second qualities of sand are produced, the analyses of which are as follows:

First quality, ... 98.6 per cent. of silica.
Second quality, ... 97.5 " "

The average number of men employed, thirty; average wages, $1 20 per day; number of tons shipped in 1885, thirteen thousand.

Dull & Bradley, McVeytown, Mifflin County.

James Pincen, foreman.

The mine and works of this firm are situated a short distance east of the borough of McVeytown.

The sand stratum, the aggregate thickness of which is about one hundred and forty feet, stands nearly vertical. At its north-western margin there is a layer of black sand, and on the south-east one of yellow sand, neither of which is mined, leaving about one hundred and fifteen feet in thickness of marketable material. It is mined from a pit at the foot of the outcrop, by means of adits or gangways on two levels or ranges, which run in a south-west direction, one set being about eighteen feet above the other. Four gangways have been driven on each range, the dimensions being twenty feet wide and thirty feet high, but some distance in, by the convergence of two of them, the number is reduced to three. From these, at various points, rooms have been opened, approximating thirty feet in width and two hundred feet in length. The extreme length of the gang-

ways on each range is about two thousand feet. The rock is sufficiently hard and firm to support the roof, and thus render timbering unnecessary. The rock mined on the upper range is passed to the lower by chutes, and like that obtained there is conveyed by cars drawn by mules over iron tramways to the mouth of the openings, and is there drawn by a cable up a slope sixty-five feet in length, accomplishing an elevation of twenty-eight feet to the works.

The works consist of a Foster rock-crusher, two chaser mills, screws, washers, three dryers, etc. The rock brought from the mine is dumped upon an iron grating, and a stream of water turned upon it from a hose; the pulverized sand is carried by the water through the apertures in the grating to a screen below. It is then passed through one of the chaser mills, and carried thence by a system of five screws having an elevation of fifteen feet and a length of seventy-six feet, in which operation it is washed and transported to a place ready for the dryer.

The remaining lumps are reduced in the crusher, and passed successively through the second chaser mill, a system of washers consisting of three screws fifteen feet in length and eighteen inches in diameter, then conveyed by three screws a distance of forty-eight feet, and an elevation of twenty-five feet, to a point where, by another system of four conveying screws, twelve feet long and nine inches in diameter, making forty-five revolutions per minute, it is carried the length of the building and dropped, ready to be taken to the dryer.

The sand thus prepared is wheeled to the dryers, three in number, constructed under a patent granted to the firm. They consist of iron tubes two and one half inches in diameter, arranged so as to leave a narrow space between each pair. In two of the dryers steam and in the other hot air is passed through the tubes. As the water in the mass is evaporated, the sand falls between the heated tubes to a platform underneath, and it is then ready for shipment.

The motive-power is furnished by a sixty horse-power steam boiler and a forty horse-power engine and by two turbine wheels, each forty horse-power, propelled by water taken from the canal above a lock and returned into the level below.

The works being situated several hundred feet from the canal, the power derived from the water-wheels is transferred to the machinery by two endless cables. The water used in washing is obtained by gravity from an adjacent stream.

Average number of men employed, sixty; average wages per day, $1 20; nunber of tons shipped in 1885, seventeen thousand four hundred.

All of the quarries and mines described in this paper are in the outcrop of the rock formation designated by Professor Rogers as the *Meridian*, and by the New York geologists as the *Oriskany* sandstone. It is one of the most constant of the Palæozoic strata in this State, and is brought to the

VIEW OF ROCKY RIDGE.

NORTH EAST OF MAPLETON, ON THE JUNIATA RIVER—LOOKING NORTH—HUNTINGDON CO., PA.

surface in many places in the valley of the Juniata by the numerous flexures of the region and the erosion of the adjacent softer formations. Conspicuous examples are the Pulpit rocks on the Warrior's ridge, west of Huntingdon, and Rocky ridge, which crosses the Juniata river at Mapleton. A view of a part of the last-named ridge is shown in one of the accompanying plates.

From the insignificant beginning by General McCombe, the business of mining and preparing glass sand for market has grown from year to year until it now constitutes one of the important and valuable industries of the valley of the Juniata. The glass works of Pittsburgh and other western cities now derive their chief supply of sand from these mines. The number of men employed, wages paid, and sand produced during the year 1885, were as follows:

Establishment.	Average number of men employed.	Average wages paid per day.	Tons of sand shipped in 1885.
B. R. Foust & Son,	13	$1 25	6,300
Juniata Sand Company,	12	1 25	7,616
Mapleton Sand Company,	30	1 20	25,000
Juniata Sand Company,	30	1 30	10,000
Enterprise Sand Company,	30	1 20	13,000
Dull & Bradley,	60	1 20	17,400
Total,	175	. . .	79,316

While ridges of the Meridian sandstone extend for miles in the numerous valleys of the Juniata region, only at places convenient to the railroad can the rock be profitably mined. In some localities it contains such a percentage of iron as to render it useless for glass making, and in others it assumes such a hard, flinty character as to render reduction unprofitable.

CYLINDER OR WINDOW GLASS.

By D. IHMSEN, Esq.

The art of manufacturing or melting glass from chemicals found in the earth is of very early origin. Some writers say it goes back as far as 3,500 years B. C., when the Phœnicians discovered, by accident, the transformation of minerals into a transparent substance called, afterward, glass.

It is said that some Phœnician merchants on the coast of Palestine were preparing their repast, and, not finding any stones on which to place their pots, took some cakes of nitre from their cargo for that purpose. The nitre, being thus submitted to the action of fire, with the sand, they produced transparent streams of an unknown fluid, and, it is said, this was the origin of glass.

Other writers say the Children of Israel having set fire to the forest that it heated the nitre with the sand so as to make them melt and run down the slopes of the hills, and, when gathered together, was found to be transparent, and a beautiful substance formed from these two chemicals, nitre and sand.

Both of these accounts may be correct, and form a matter of history in the discovery of melting sand or silica with other chemicals taken from the earth which gives us the article of glass. We propose treating of, giving its uses and the perfection it has attained up to the present time.

The Bohemians and French certainly deserve the credit for bringing glass into general use and making its manufacture a profitable article of trade and commerce.

The theory of manufacturing common glass is, like all nature's secrets, at once simple and beautiful, and, in order to make labor incumbent on us, the Creator has been pleased to conceal His favors, leaving for us to discover them.

The materials for manufacturing glass are to be met with everywhere. Sand is the chief component part or body of glass, and when mixed with carbonated or sulphated soda ash, lime, and salt, makes common window glass, green bottles, and vials; adding such chemicals as black or Hungarian lead, manganese, and other articles to make ruby or red colored bottles, now so extensively used for bottling beer, wines, &c.

But glass, according to the old saying, is the offshoot of fire, and the State of Pennsylvania is producing a fire in great abundance—natural gas, which in the near future will be brought into general use, especially in the western portion of the State. The cheapness of this fuel, and the labor about furnaces which it saves, will materially cheapen the cost of the making of glass in this State.

Now that we are somewhat acquainted with the materials used in making window glass—sand, soda ash, lime, and salt—we will enter one of the vast work-shops known as the window-glass house. Here we see a large, square-shaped melting furnace in the center of a large building. Looking at the furnace, we see it contains a number of openings, which are called "ring holes," through which we see, within, the melting pots, or crucibles. An average window furnace contains ten pots or crucibles.

The mode or manner of making window glass is beautiful and instructive, and, without going into an elaborate description, which limited space prohibits, we will content ourselves with giving the outlines of this important branch of the glass business.

The helper, or gathering, boy, as he is called, gathers on the end of a long hollow pipe, about four feet long, from the pots or crucibles, a sufficient quantity of glass for the blower to make a cylinder. He then places the glass thus gathered into an iron or wooden block in order to form it into a smooth and even surface. The blower then takes charge of the work, by first blowing lightly through the pipe, drawing out the mass a little, and, by degrees, gives it the form of a pear. He then takes it from the block and places it in the ring hole of the blowing furnace, so that it will become sufficiently warm or flexible to lengthen out. Then, by raising it so as to gather the glass, he blows hard at short intervals, and gives it a movement backward and forward, so as to lengthen the pear, which assumes a cylindrical shape; then he keeps swinging it until he gets it the length he desires, preserving the same thickness from the pear-shaped ball to the end of the cylinder, say fifty, sixty, or even ninety inches long. He then brings it to a horizontal position, resting the pipe with the cylinder on an iron rod attached to the side of the blowing furnace, and by steady and regular blowing a hole is soon blown through the end of the cylinder, and, by the art of the workman, it is opened as wide at the end as at any part of it.

When the cylinder has become firm, it is placed on a wooden rest or steel, called "the horse;" the end of the pipe is touched with a cold iron rod, when the pipe separates immediately from the cylinder; then a thread of hot glass is wound around the end just detached from the pipe, and the part thus heated is touched with a cold iron rod Thus we have on the rest a cylinder open at each end. By passing a red-hot iron down the interior in a straight line, the glass bursts open by placing the finger or hand on the heated extremes.

A perfectly plain surface has to be obtained from the split cylinders as above described.

To do this the cylinders are taken to the oven which is heated to a dark cherry red, and is called the "flattening oven."

A description of this oven will be instructive to those who are not familiar with the manner of converting round cylinders into flat sheets of glass.

The flattening oven is built perfectly round, from twenty to twenty-five feet in diameter, and the top is conically formed. Inside this oven is placed a revolving wheel, worked from the pit, or cellar, with double-acting cog wheels and with a lever for turning the wheel extending outside. It is built upon the principle of a locomotive turn-table. On this revolving wheel are placed six, and in some cases eight, stones about eighty inches long by fifty wide, having a plain smooth surface.

Extending from the top of the oven to the stones is a bridge (in the center) for the purpose of dividing the oven, so that one part becomes hotter than the other.

With the lever extending from the cog-wheels, this revolving wheel is turned the complete circle, having one half the stones on each side of the bridge.

The oven being now prepared and heated for the work of flattening, the first operation is done by the serving or "stick-up" boy (as he is called) by placing a cylinder partially in an opening that it may be become gradually warmed. It is then placed directly on the stone inside the oven, and then the wheel is turned to the flattener who, assisting the natural effect of heat, lays flat the cylinder on the stone and passes over it a wooden plain, or block, which makes the surface perfectly plain or flat.

The wheel is turned again, carrying the plain sheet under the bridge to the outer apartment of the oven, where a workman called the "piller" receives it and passes it on an iron car at the end of the lear or tempering oven.

This lear is about sixty or eighty feet in length, and built in connection with the oven, having rails running through it for the cars to pass through; these cars hold from thirty to forty sheets of glass, and when one is loaded it is moved by a windlass sufficiently forward to allow another one to take its place, and thus the operation is continued until the first loaded car is drawn to the end of the lear, when the sheets of glass are sufficiently cool for a workman to take them from the car and place them in the cutting apartment. This empty car is returned on an outside track to the piller to be filled again, and placed in the tempering oven as before.

The cutter now takes charge of the glass, and cuts the sheets into lights of such size and quality as the glass will admit of, giving the blower credit for it accordingly. The cutting is an important trade in the cylinder or plate-glass business. Upon the cutter devolves the duty of selecting the different qualities, and as he places them on the floor, so are they packed for shipment, and the credit to the blowers and flatteners is given from his statement.

Perhaps no article of manufacture has increased in quality and production more than that of window glass, since its first introduction into this country up to the present time.

The first window-glass factory we have any account of west of the Alle-

gheny mountains, was one built at the junction of the Monongahela and Allegheny rivers, at a place now called "Glass House Ripple," in 1814. The second was built at Crotsburgh, now the Thirty-sixth ward of Pittsburgh, by Colonel O'Hara. Several glass-blowers, who afterward became prominent manufacturers, worked at the O'Hara Glass Works, viz: Wendt, Ensel, Sullivan, Loreny, Ihmsen, McKees, Sallisbury, Campbell, and some others.

Wendt, Ensel, and Ihmsen bought property in Birmingham, now Twenty-fifth, Twenty-sixth, and Twenty-seventh wards of Pittsburgh, in 1820, and carried on the business for some years. At this time the largest size light of glass known to be made was 20×24; the common and leading sizes being 6×8, 7×9, and 8×10.

Thomas Ihmsen bought the Birmingham Glass Works in 1828, and carried on in company with his brother Christian, until Thomas' death, in 1834, when C. Ihmsen continued the business. The same factory, re-modeled and re-built, is now the property of the "Ihmsen Glass Company, Limited."

James Sallisbury operated the Crotsburgh factory in 1834. H. Loreny and William McCully succeeded to the Crotsburgh and Sligo factories, in 1836.

Samuel James & Thomas McKee built and carried on in Birmingham, in 1836. A. & D. H. Chambers in 1845, Cunningham & Ihmsen in 1849.

In 1836, there were four window-glass factories in the State of Pennsylvania, producing 12,800 boxes of glass per annum, valued at $32,000. The materials for making window glass up to that time, were procured principally in Pennsylvania and Ohio.

Sand, lime, and salt from Pennsylvania, potash and pearl ash from Ohio, now soda ash, which is manufactured in England, have been substituted for potash and pearl ash.

At the present time there are, in the State of Pennsylvania, thirty-six cylinder glass furnaces, equal to three hundred and forty-eight pots, producing 1,127,520 boxes window glass per annum, at an estimated value of $2,593,296. With the exception of 100,000 boxes which finds a foreign market in Mexico, Cuba, and Canada, the entire product of window glass is consumed in the United States.

The average number of men and boys to operate a window-glass factory is about fifty, and their wages at the present time are as follows:

Single-strength blowers will average per day,	$5 00
Double-strength blowers will average per day,	9 00
Gathering boys will average per day,	3 50
Flatteners will average per day,	5 00
Cutters will average per day,	4 00
Other laborers will average per week,	11 00
Roller boys will average per week,	5 00

The wages per day for one ten-pot furnace are $168, and for the three hundred and forty-eight pots now operated in Pennsylvania we have $5,846 per day, or $1,520,064 for one blast of ten months.

The materials used for one ten-pot furnace for one blast of ten months are as follows:

Soda ash, 400 tons, costing at factory,	$11, 600
Sand, 900 tons, costing at factory,	2, 025
Lime, 300 tons, costing at factory,	975

For the three hundred and forty-eight pots now being operated for the manufacture of cylinder or window-glass, there are consumed of soda ash, sand, and lime, annually, the following amounts:

Soda ash, 13,920 tons, @ $29 per ton,	$403, 680
Sand, 31,320 tons, @ $2 25 per ton,	70, 470
Lime, 11,440 tons, @ $3 25 per ton,	37, 180
Total,	$511, 330

Estimated cost of the product of three hundred and forty-eight pots of cylinder or window glass for one blast of ten months:

Wages,	$1, 520, 064
Material,	508, 080
Fuel, 407,160 bushels coal, @ 64 cents,	244, 296
Boxes for packing,	69, 600
Straw for packing,	44, 544
Nails for packing,	17, 400
Total,	$2, 403, 984

Estimated sales of the product of three hundred and forty-eight pots for one blast of ten months, viz:

876,960 boxes single-strength glass, } valued at, ... $2, 593, 296
250,560 boxes double-strength glass, }

The following firms are now engaged in the manufacture of cylinder or window-glass:

		Furnaces.	*Pots.*
Thomas Wightman & Co., (Limited,)	Pittsburgh,	2	20
William McCully & Co.,	"	2	20
A. & D. H. Chambers,	"	3	30
R. C. Schmertz,	"	3	30
E. C. Schmertz,	"	1	10
Ihmsen Glass Company, (Limited,)	"	1	10
Stewart Estep & Co.,	"	2	18
S. McKee & Co.,	"	3	24
Wolf, Howard & Co.,	"	2	20
Abel Smith & Co.,	"	1	10
Phillips & Co.,	"	2	20

		Furnaces.	Pots.
T. Campbell & Co.,	Pittsburgh,	1	10
Cunningham & Co.,	"	1	10
D. O. Cunningham,	"	1	10
George Wamhoff & Co.,	"	1	10
Bellefonte Glass Company, Bellefonte,		1	10
Forbes, Holton & Co., New Castle,		1	10
Knox & Foltz, New Castle,		1	10
Bradford Glass Company, Bradford,		1	10
J. Albertson & Co., Norristown,		1	10
Hersh, Ely & Co., Blossburg,		1	10
Gaslinder & Sons, Philadelphia,		2	16
Cohansey Glass Company, Philadelphia,		2	20
O'Leary Bros., Monongahela City,		1	10

The skilled workmen in the cylinder houses live comfortably, many of them owning their own residences; their wives and children dress well, and with taste and elegance. Many of them have invested their savings in manufacturing and other business; quite a number have settled on farms in Ohio, Iowa, and other Western States. Most of the blowers, flatteners, cutters, and gatherers in the cylinder houses are sober, industrious, and intelligent men. There may be exceptions to the rule, however, in this branch of the glass business, but the temperate and industrious window-glass worker can, beyond doubt, lay by a competency sufficient to live on after fifteen or twenty years' steady work at his trade.

Flint-glass Tableware.

The first establishment we have any record of making flint-glass tableware in this State is a furnace built by Pakencel, Payne & Pakencel, in 1808, at Pittsburgh. These gentlemen brought from England molds, tools, and a few workmen, and commenced this branch of the glass business in a small way.

John Robinson, an English glass worker, built a furnace on the corner of Ross and Second streets, in the city of Pittsburgh, and commenced making tableware in 1820. Park, Hanna & Co. followed in 1826.

In 1825 and 1826 there were four flint tableware houses in operation in Pittsburgh, making 27,000 boxes of glass, valued at $135,000. At the present time, there are thirty-six furnaces or 375 pots in this State, turning out ware to the value of $4,687,500.

Up to the close of the rebellion, the materials used in making flint tableware were sand, pearl ash, red lead or litharge, and nitrate of soda. At the present time, carbonated or refined soda ash and lime have been substituted for pearl ash and lead, making a reduction in the cost of the whole.

A large amount of the product of the tableware houses finds a very ready foreign market in Mexico, Cuba, South America, and Canada, and if the facili-

ties for shipping to foreign markets were extended more liberally to our manufacturers, this branch of the glass business would, no doubt, double itself in a few years, as the superiority of the pressed tableware manufactured in this State is acknowledged by the manufacturers of England, Germany, and France, so much so that English tableware manufacturers have made large contracts with Pittsburgh houses, within the last few years, for presses, molds, and tools.

Estimated cost of the product of one tableware furnace for 260 days:

12 pressers, 6 at $3 85, 6 at $5 00 per day,	$53 10	
12 gathering boys, 6 at $2 20, 6 at $2 75 per day,	28 70	
35 boys, 18 at 80 cents, 17 at $1 10 per day,	33 10	
4 packers, at $2 00 per day,	8 00	
2 mixers, at $1 71½ per day,	3 43	
1 mold maker, per day,	5 00	
4 mold makers, at $2 85⅝ per day,	11 43	
35 girls, 18 at 25 cents, 17 at 33⅓ cents per day,	10 16	
5 other laborers,	5 46	
		$158 38
Soda ash, sand, lime, nitrate of soda, including packages and office expenses per day,		209 51
Cost for one day,		$367 89
Cost for 260 days,		95, 651 40
Cost for 36 furnaces for one blast, or 260 days,		$3, 443, 450
Estimated sales of the product of 36 furnaces for 260 days,		$4, 500, 000

Net amount of material consumed in the 36 tableware furnaces for 260 days:

5, 760 tons soda ash, refined, at $30,	$172, 800	
21, 600 tons sand, at $3 50,	75, 600	
2, 160 tons lime, at $6 66⅔,	14, 400	
1, 440 tons nitrate of soda, at $70,	100, 800	
		$363, 640

Men and boys employed at the 36 tableware furnaces,	2, 666
Girls employed at the 36 tableware furnaces,	540
	3, 206

The following firms are engaged exclusively in the manufacture of tableware in this State:

		Furnaces.	*Pots.*
Adams & Co.,	Pittsburgh,	3	36
Bryce Bros.,	"	3	34
Bryce, Higby & Co.,	"	2	18
George Duncan & Sons,	"	2	21
King, Son & Co.,	"	2	24
McKee & Brothers,	"	3	35
Ripley & Co.,	"	1	14
Doyle & Co.,	"	1	14
Richard & Hartley Glass Co.,	"	1	14
O'Hara Glass Co.,	"	1	10
Chalmer & Taylor,	"	1	16
Campbell, Jones & Co.,	"	2	20
Crystal Glass Co.,	"	1	10
Atterbury & Co.,	"	2	12
Rochester Tumbler Co.,	Rochester,	3	28
Corporated Glass Co.,	Beaver Falls,	1	10
Gallinder & Sons,	Philadelphia,	2	23
Henry Glass Co.,	"	1	10
Giel & Murray,	"	2	10
Rohrbacker & Herman,	"	1	10
Reizenstein & Kessmeier,	"	1	6

Prescription Vials and Bottles.

A long-felt want for a finer and better article of vials and bottles by the manufacturing druggists of our large cities for putting up their more costly articles of medicine for the trade, induced some of our glass manufacturers to experiment in producing such an article as the wants of the trade demanded.

After many trials, this was accomplished by eastern and western manufacturers about the same time.

The honor for the advance and perfection of this branch of the glass business is probably due to such enterprising houses as H. C. Fox & Co., G. Storm, and Burgin & Sons, from the east; Dr. Anderson, D. Evans, Hamilton Bros., and Tibby Bros., of Pittsburgh.

There are now engaged exclusively in the flint prescription business in the western part of the State fourteen furnaces, equal to 132 pots, and in the east eight furnaces, equal to sixty-eight pots, making twenty-two furnaces, or 200 pots, in the State of Pennsylvania, with a capacity for turning out $50,000 worth of ware per furnace each season of ten months, or, in other words, this State is now producing the amount of $1,100,000 worth of flint prescription vials and bottles every season of ten months.

Dr. Anderson and D. Evans, of Pittsburgh, and H. C. Fox and G. Storm, of Philadelphia, commenced this business in a small way in 1857 and 1858.

Hamilton Bros., Tibby Bros., of Pittsburgh, and Burgin, of Philadelphia, commenced on a larger scale in 1863. W. McCully & Co. bought out Anderson and Evans in 1867.

From 1863 to 1866–67, the production amounted to $100.000.

The ingredients required to produce flint prescription glass are proportioned as follows: To every 100 pounds sand are added forty pounds refined soda ash, thirty pounds lime, five pounds nitrate of soda, two pounds manganese.

The best quality of sand comes from Blair and Huntingdon counties, although quite a good article is had in Fayette county. Soda ash is imported from England almost exclusively.

The other chemicals used are of a trivial matter in the cost of production, and vary according to the different ideas of color and finish in manufacturing.

As the different ingredients have been thoroughly mixed together, they are drawn to the furnace in large barrows or wagons and shoveled into the pots.

This mixture, or batch, is allowed to remain in the crucibles from twenty to twenty-four hours under a steady white heat; after it has been allowed to cool off a certain time, it is ready for the blower.

Although the blower and boy are sufficient for the manufacture of sheet glass, two or three additional workmen are required for bottles.

The functions of the several workmen in this branch of the glass business are as follows:

The blower, with a hollow iron pipe four feet in length, gathers some glass from the pot, gives it a rotary movement, and places it on an iron or stone marvel, rolling the glass until it becomes lengthened; the blower then places the glass in an iron mold, when the mold boy immediately closes it, and the blower blows through the pipe, and this mass, just before so shapeless, becomes a bottle. The bottle is yet unfinished, however, for it is then taken from the mold and handed to the serving boy, who passes it to the finisher, who puts the neck or rim on it, when another boy carries it to the annealing oven.

After undergoing a tempering process of twenty-four hours, the ware is conveyed in wagons or barrows to the packing apartment, where it is selected and packed for shipment.

The packing of the ware is a responsible and trustworthy position, inasmuch as the packer has to exercise his judgment in approving or rejecting the quality of ware to be packed, and he keeps an account of each blower's day's work to be placed to his credit, and in many cases the packer's name is branded on the boxes, so that he may be held responsible for any dereliction of duty.

We append a list of names of firms engaged at present in the manufacturing of flint vials and bottles in this State:

H. C. Fox & Co., Philadelphia,	3 furnaces.	26 pots.
G. Storm, Philadelphia,	2 "	15 "
Burgin & Son, Philadelphia,	1 "	8 "
W. H. Hamilton & Co., Pittsburgh,	2 "	20 "
T. & I. Hamilton, Pittsburgh,	2 "	20 "
Tibby Bros., Pittsburgh,	3 "	24 "
William McCully & Co., Pittsburgh,	2 "	20 "
Agnew & Co., Pittsburgh,	1 "	10 "
Flaccus & Co., Pittsburgh,	1 "	8 "
Butler Glass Company, Butler,	1 "	10 "
New Brighton Glass Company, New Brighton,	1 "	10 "
Beaver Falls Glass Company, Beaver,	1 "	10 "
Robert Liddell & Co., Pittsburgh,	1 "	10 "
	21	191

Estimated cost of the product of one ten-pot prescription furnace for forty weeks:

Skilled and common labor,	$41, 061 60	
Material, fuel, and packages,	27, 496 80	
Cost of one furnace,		$68, 558 40
Cost of twenty furnaces,		1, 371, 168
Estimated sales of the product of twenty furnaces for forty weeks,		1, 500, 000

Net amount of material consumed in the twenty prescription furnaces for forty weeks:

6,000 tons soda ash, refined, $30,	$180, 000	
19,200 tons sand, $2 40,	46, 080	
58,800 bushels lime, 20 cents,	11, 760	
420 tons nitrate of soda, $70,	29, 400	
		$267, 240
Men and boys employed in twenty furnaces for forty weeks,		1, 680

The manufacture of lamp chimneys is of recent date compared with other branches of the glass business. We may date its origin at 1858 or 1860. When petroleum oil was discovered and refined, oil became of general use for illuminating purposes, and from that time until the present, it has assumed very large proportions.

We have now in this State, manufacturing lamp chimneys exclusively, fourteen furnaces, or one hundred and twenty-six pots, producing in value to the amount of $1,610,000.

There is an average of one hundred and thirty-eight men, boys, and girls employed at each furnace, or 1,932 at the fourteen furnaces.

Estimated cost of the product of one chimney furnace for ten months, or forty weeks:

Labor paid 138 employés, per week,	$2, 183 93
Material, fuel, &c.,	551 30
Product for one week,	$2, 735 23
Product for 40 weeks,	109, 409 20
Product for 40 weeks of 14 furnaces,	1, 531, 728 80
Estimated sales of the product of 14 furnaces or 126 pots, for 40 weeks,	1, 610, 000 00

The firms in operation in this State making lamp chimneys exclusively are as follows:

	Furnaces.	*Pots.*
Thomas Evans & Co., Pittsburgh,	2	25
Hogan, Evans & Co., Pittsburgh,	2	20
Independent Glass Company, Pittsburgh,	1	10
George A. McBeth & Co., Pittsburgh,	2	14
Dethridge & Co., Pittsburgh,	2	
Excelsior Flint Glass Company, Pittsburgh,	1	10
Phœnix Glass Company, Philipsburg,	2	24
Gillinder & Son, Philadelphia,	2	23

Net amount of material consumed in the 14 chimney furnaces for 40 weeks:

2,520 tons soda ash, refined, @ $30,	$75, 600
6,720 tons sand, @ $2 40,	16, 128
756,000 pounds nitrate of soda, @ 3½ cents,	26, 460
30,800 bushels lime, @ 20 cents,	6, 160
	$124, 348

The mode and manner of making beer and wine bottles, which has become so large and important a branch of the glass business, differ very little from the mode and manner of making prescription ware, as described in a former article.

The ingredients for making this quality of glass, are silica, carbonated soda, ash, lime, oxide of iron or Hungarian lead.

The gathering-boy takes glass from the pot, and passes it to the blower, who gives it the same rotary movement as in prescription ware, (marvling the glass,) by which means the ball becomes lengthened. He then places it in the mold, which is closed by the serving boy, and when fully blown up it is carried to the finisher, who puts the rim on the bottles, when it is placed in the annealing oven to undergo the same process as that of prescription ware.

Estimated cost of product of one ten pot bottle furnace for 10 months, or 260 days:

20 blowers, @ $5 per day,	$26, 000

30 boys, @ $5 per week,	$6, 000
50 other laborers, @ $9 per week,	18, 000
Net cost of material to operate one 10-pot furnace for 10 months,	27, 925
Boxes, @ $100 per month,	1, 000
Fuel, 45,000 bushels coal, @ 6 cents,	2, 700
Straw, 150 tons, @ $8,	1, 200
Nails,	500
Office expense,	100
Net amount for 10 pots for 10 months,	$83, 425
Net amount for 100 pots for 10 months,	834, 250
Estimated sales of the product of 100 pots, now in operation, for 10 months,	1, 040, 000

Net amount of material consumed in the 100-bottle pots now operated in this State:

7,500 tons soda ash, @ $29,	$217, 500
17,000 tons sand, @ $2 25,	28, 250
6,000 tons lime, @ $3 25,	19, 500
25,000 bushels salt, @ 16 cents,	4, 000
	$279, 250

Number of men and boys employed in making beer and wine bottles, 1, 000

The firms engaged in the manufacture of beer and wine bottles and fruit jars are:

	Furnaces.	*Pots.*
Cunningham & Co., (Limited,)	1	10
D. O. Cunningham,	1	8
Ihmsen Glass Company, (Limited,)	1	8
Thomas Wightman & Co., (Limited,)	2	16
A. & D. H. Chambers,	2	18
William McCully & Co.,	1	8
Scranton Glass Company,	1	8
Hero Glass Company, Philadelphia,	2	16
Henry B. Benners, Philadelphia,	1	8

Recapitulation.

Amount of material used in the manufacture of glass in this State for one season or ten months:

Table-ware furnaces use soda ash, tons,	5, 760
Lamp chimney " " "	2, 520
Prescription " " "	6, 000
Cylinder " " "	13, 920
Green and ruby bottle furnaces use soda ash, tons,	7, 500
Total tons,	35, 700

Table-ware furnaces use sand, tons,				21, 600
Lamp chimney	"	"		6, 720
Prescription	"	"		19, 200
Cylinder	"	"		31, 320
Green and ruby	"	"		17, 000
Total tons,				95, 840
Table-ware furnaces use lime, tons,				2, 160
Lamp chimney	"	"	30, 800 bushels, } or	2, 688
Prescription	"	"	58, 800 " }	
Cylinder	"	"		11, 440
Green and ruby	"	"		6, 000
Total tons,				22, 288
Table-ware furnaces use nitrate of soda, tons,				1, 440
Lamp chimney	"	"	"	378
Prescription	"	"	"	420
Total tons,				2, 238
Green and ruby furnaces use salt, tons,				25, 000
Men and boys employed in table-ware houses,				2, 666
Girls	"	"	"	540
Men and boys	"	in lamp chimney houses,		1, 932
"	"	in prescription	"	1, 680
"	"	in beer and wine	"	1, 000
"	"	in cylinder	"	1, 800
				9, 618

PLATE-GLASS.

TABLE *showing the number of furnaces, pots, days in operation, persons employed, wages paid, amount and value of product, compiled from returns made to this Bureau by twenty operators for the year ending December 31, 1885.*

County.	Number of establishments.	Number of furnaces.	Number of pots.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Number of boxes of glass. (50 feet.)	Value of product.
Allegheny,	9	19	190	208	1,456	$739,952	564,149	$1,404,124
Crawford,	1	1	8	180	52	18,750	15.000	28,590
Fayette,	1	3	30	210	219	171,116	63,789	243 324
Lawrence,	2	2	20	250	137	97,840	62,000	162,000
Montgomery,	1	2	20	225	150	60,000	54,000	130,000
Tioga,	1	1	8	200	45	30,000	24,000	49,200
Washington,	2	2	20	215	115	76,628	57,998	137,472
Total, 1885,	17	30	296	208	2,174	$1,194,286	840,936	$2,154,710
Total, 1884,	16	24	230	241	1,414	$847,709	512,447	Not stated.
Increase,	1	6	66	.	760	$346,577	328,489	
Decrease,	. .	. .	. . .	33				

The annual wage fund divided share and share alike would give each employé about $550 per annum, or about $10 60 per week. Blowers of double-strength glass average $6 per day. Blowers of single-strength glass average $5 per day. Gatherers of double strength from $3 to $5 per day, and in some instances as high as $6 per day. Gatherers of single-strength glass average about $4, in some instances they are paid as high as $5 per day. Common laborers average about $1 40 per day. Other workmen average about $2 40 per day. This industry requires skilled workmen, and the rates of wages paid are the highest of any in the State, some blowers of double-strength glass receiving as high as $10 per day.

GLASS OTHER THAN PLATE.

TABLE *showing the number of furnaces, pots, days in operation, persons employed, wages paid, and value of product, compiled from returns made to this Bureau by forty-three operators for the year ending December 31, 1885.*

COUNTY.	Number of establishments.	Number of furnaces.	Number of pots.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Allegheny,	25	42	448	246	4,241	$1,757,092	$3,465,999
Beaver,	4	8	91	300	1,074	427,282	790,344
Bedford,	1	1	9	85	70	25,000	40,000
Butler,	1	1	8	265	38	25,000	58,000
Centre,	1	1	10	243	60	48,700	70,000
Delaware,	1	1	5	180	28	4,500	15,000
Monroe,	1	1	5	260	100	47,500	80,000
Philadelphia,	6	10	77	224	1,412	456,083	1,050,429
Wayne,	1	2	16	275	278	103,424	191,698
Total, 1885,	41	67	669	247	7,301	$2,894,581	$5,761,470
Total, 1884,	42	66	649	262	6,939	2,946,190	5,659,448
Increase,		1	20		362		$102,022
Decrease,	1			15		$51,609	

The apparent reduction in wages is the result of estimates made by operators who had failed to keep a proper account of wages paid employés. The table shows an increase of 362 employés, and a reduction in total wages paid of $51,609. The reduction in working days will not account for the total loss in wages, nor has any report of a general reduction in wages been presented to this Bureau. It is, therefore, probable that the operators have, in some instances, either over-estimated the wages paid in 1884, or under-estimated the wages paid in 1885.

The annual wage fund, divided share and share alike, would give each employé about $397 per annum, or about $7 67 per week. Highest wages paid was $5 50, to blowers; the average highest wages paid was $4 00 per day; the average wages paid intermediate hands was about $2 00 per day; common laborers were paid about $1 50 per day. There were 2,000 boys, who were paid an average wage of 66 cents per day, and 309 females, who were paid an average wage of 55 cents per day.

IRON AND ITS PRODUCTS.

IRON ORE.

TABLE *showing the number of persons employed, the number of days in operation, the annual wages paid, the number of gross tons of ore mined, the value of the same, and the average cost for labor to mine one ton of ore, compiled from reports made to this Bureau by sixty-four operators for the year ending December 31, 1885.*

COUNTY.	Number of days employed.	Number of persons employed.	Annual wages paid.	Tons of ore mined.	Value of product.	Cost in labor per ton.
Beaver,	40	3	$70	100	$250	$1 25
Bedford,	200	365	37,169	37,742	84,868	1 60
Berks,	260	154	38,000	37,944	103,546	1 10
Blair,	200	150	26,300	35,953	34,706	1 40
Centre,	126	127	22,824	29,591	41,192	82
Chester,	240	75	30,000	15,257	45,257	1 96
Franklin,	220	39	3,700	3,571	7,234	1 40
Huntingdon,	250	175	52,312	35,966	68,241	1 60
Juniata,	238	11	3,575	1,669	4,591	1 50
Lancaster,	182	60	12,225	8,150	16,300	1 50
Lebanon,	311	250	72,500	486,967	973,934	1 50
Lehigh,	240	342	64,346	72,177	144,425	1 20
Northampton,	240	62	19,458	11,073	29,035	1 40
Perry,	260	48	10,409	9,087	19,950	85
Snyder,	270	112	22,576	12,810	36,275	75
York,	290	53	12,052	13,652	32,144	82
Total, 1885,	235	2,026	$427,516	811,709	$1,641,948	85
Total, 1884,	215	2,428	623,376	829,011	. .	85
Increase,	20					
Decrease,	.	402	$195,860	17,302		

The above report is compiled from all the operators reporting in 1884. Some of them report the year 1885 as one of the worst years for ore mine operators they had ever experienced.

The cost of labor to mine one ton of ore will average about eighty-five cents per ton. Where it exceeds that amount, the cost of supplies and transportation has been added.

The annual wage fund, if divided equally among all the employés, would give each about $211 for 1885, and about $256 for 1884. Highest wages paid, $2 25 per day; average highest wages paid, eighty cents per day; lowest wages paid, forty-eight cents per day to boys.

BLAST FURNACES.

TABLE *showing the number of stacks in and out of blast, production in tons, number of days in operation, persons employed, annual wages paid, &c., compiled from reports made to this Bureau by one hundred and twenty-one operators for the year ending December 31, 1885.*

COUNTY.	NUMBER OF STACKS.			Number of days in operation.	Number of persons employed.	Amount paid in wages.	Number of gross tons of iron made.	Cost of labor at the furnace to make one ton of iron.	Value of product.
	In blast.	Out of blast.	Total.						
Allegheny,	14	3	17	262	1,733	$926,487	535 409	$1 70	$7,247.225
Armstrong,	1	. . .	1	180	70	19,417	9 859	97	138.026
Bedford,	2		2	350	169	91 481	40,594	2 18	665.560
Berks,	11	2	13	232	731	199,730	97,480	1 74	1 386.212
Blair,	4	.	4	360	196	73,855	34,533	2 04	577.351
Bucks,	1	. . .	1	235	287	132.845	21,177	1 95	335 000
Carbon,	4	. . .	4	340	82	24 909	14,222	1 67	214 147
Centre,	2	.	2	237	22	2 844	1.391	2 10	30,841
Chester,	2	2	4	300	80	37,767	19,771	1 63	289,563
Columbia,	2	1	3	365	127	31,400	15,968	1 80	231.000
Cumberland,	2		2	200	180	17,100	7,898	1 50	121,700
Dauphiu,	2	1	3	217	129	49,218	14 693	1 85	135 088
Fayette,	3	1	4	356	170	95,615	53,497	2 10	736 984
Frauklin,	1		1	86	33	4 626	1,764	2 60	35.286
Huntingdon,	3	2	5	313	306	63,946	24,407	1 75	398,865
Lancaster,	6	.	6	300	229	90.508	40 767	2 08	631 728
Lawrence,	3	.	3	246	251	117 410	72,746	1 58	961 392
Lebanon,	5	1	6	235	314	156,334	70,736	2 05	1,116 235
Lehigh,	13	14	27	300	919	340,887	207,660	1 40	3,322,477
Mercer,	7	2	9	186	387	150,788	85,676	1 58	1,272,768
Mifflin,	3		3	175	104	24,178	10,802	2 22	164,152
Montgomery,	4		4	240	152	62,469	33,454	1 30	528,421
Northampton,	5	3	8	300	433	194,134	73,925	2 13	1,141.390
Northumberland,	1		1	40	24	1,600	670	2 00	10,050
Perry,	2	. .	2	245	110	35,464	18.779	1 91	281,994
Schuylkill,	2	2	4	267	91	20,750	7,944	2 60	131,844
Union,	1		1	250	29	7,000	4.000	1 25	60,000
Westmoreland,	1	. . .	1	123	66	15,748	6,307	1 66	94,605
Total, 1885,	107	34	141	250	7,634	$2.988 510	1,456.134	.	$22 259,902
Total, 1884,	134	94	228	231	9,662	4 333,783	2 092 754		Not stated.
Decrease,	27	60	87	.	2,028	$1,345,273	636,620		
Increase,	. . .	. . .	. . .	19					

Total production of pig-iron, net tons, in Pennsylvania for 1885, per report of James M. Swank, 2,445,496. The reports are from the same operators reporting in 1884.

Thirty-six furnaces were reported as "out of blast," or "standing idle," in 1885.

The annual wage fund, if divided share and share alike among all the employés, would give each about $405 per annum. The average highest wages paid was $3 00 per day, and the average lowest wages paid was $1 10 per day, unskilled labor largely predominating.

ROLLING-MILLS.

TABLE *showing the number of mills reported in operation number of furnaces, trains of rolls, nail machines, production of iron, steel, nails, spikes, &c., the number of persons employed, the number of days in operation, and the annual wages paid, compiled from reports made to this Bureau by one hundred and thirty-two operators for the year ending December 31, 1885.*

COUNTY.	Number of establishments.	Number of puddling furnaces.	Number of heating furnaces.	Number of trains of rolls.	Number of nail machines.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Number of tons of iron of all grades produced, 2,000 pounds to the t.n.	Number of kegs (100 pounds) of nails, spikes, tacks, and rivets.	Number of tons of steel produced, 2,000 pounds to the ton.
Allegheny,	32	836	378	198	426	215	15,550	$7,419,468	352,372	461,884	†77,648
Armstrong,	2	38	6	4		187	299	133,959	4,895		
Beaver.*											
Berks,	10	65	30	24	143	228	1,437	580,788	58,646	244 718	375
Blair,	4	69	15	15	53	291	624	257 646	18 895		
Bradford,	1	2	3	2	26	225	70	30,000		40,000	
Bucks,	1		2	3		300	75	40 000	4 300		
Centre,	3	10	5	6	52	240	247	80,809	781	100,000	
Chester,	7	45	40	21	12	200	1,899	684 917	42 245	488	1,970
Columbia,	1	11	3	3		307	117	71,592	7,994		
Cumberland,	1	9	3	3	80	274	406	146 768	867	189,921	
Dauphin,	2	25	8	4	103	250	550	263 643	6,191	248,004	†
Delaware,	2	11	12	9	3	278	162	73,968	6,134	1,850	
Lackawanna,	1		1	2		200	30	12,257	1,175		†
Lancaster,	3	29	12	9		270	643	180,220	297,000	11,000	
Lawrence,	2	42	13	8	55	104	475	121 079	28 021	47,646	
Lebanon,	4	14	8	10		270	386	141,793	18,319		
Lehigh,	2	35	12	10		285	710	247,638	21,134	110	
Lycoming,	2	13	3	4	78	280	297	106 725	6,030	130,368	
Mercer,	4	99	18	16	104	150	1,195	273 504	14,172	59,274	
Mifflin,	1	11	5	5		215	108	46,400	4,960		
Montgomery,	10	103	56	39	195	268	3,130	1,179,669	66,649	397 234	2 332
Montour,	3	52	25	11	72	205	763	199,946	19,107	155,408	1.578
Northampton,	2	14	10	4		290	201	105,200	1,700		†
Northumberland,	4	41	6	8	190	270	678	301,484	6,536	247 917	
Perry,	1	16	6	4	64	290	350	148,446	11.043	119,685	
Philadelphia,	8	46	40	33	38	295	1,206	606,878	54 055	60,000	600
Schuylkill,	2	10	14	6		195	490	125,054	9,995		
Union,	1	3	1	1	35	300	138	41,277		48 490	
Washington,	1	4	5	2		212	135	80,700	1,904		441
Westmoreland,	1	13	7	3		250	220	105 000	3,000		
York,	1	6	4	3		250	160	75,000	8,500		
Total, 1885,	119	1,672	751	470	1,729	226	32,751	$13,881,848	1,076,670	2 563 997	84,944
Total, 1884,	142	1,868	794	501	1 363	221	33,459	14 851,898	928,942	2,334,177	
Increase,					366	5			147,728	229,820	
Decrease,	23	196	43	31			708	$970,050			

*See crucible steel, miscellaneous iron. †See Bessemer steel.

The annual wage fund, if divided among all the employés share and share alike, would give to each about $424 per annum; the average highest daily wages is about $3 75, but almost one half the total of employés are common laborers and boys who are paid from sixty cents to $1 25 per day.

As per report of James M. Swank for 1885, Pennsylvania had a total production of bar, rod, hoop, skelp, and shaped iron of 564,350 net tons.

Plate and sheet-iron, except nail-plate, 252,711 net tons.

Iron-cut nails, (steel excluded,) 2,359,307 kegs.

Iron rails, 5,839 net tons.

Total rolled iron, 940,865 tons.

BESSEMER STEEL.

TABLE *showing the number of converters, furnaces, employés, annual wages paid, number of days in operation, net tons of rails and other steel manufactured, and the value thereof, compiled from reports made to this Bureau by eight Bessemer steel manufacturers for the year ending December 31, 1885.*

COUNTY.	Number of converters.	Capacity of converters in tons.	Number of iron cupolas.	Number of spiegel cupolas.	Number of open hearth furnaces.	Number of other furnaces.	Number of trains of rolls.	Average number of days in operation.	Number of persons employed.	Annual wages paid.	AMOUNT OF PRODUCT.			Value of product.
											Steel rails, net tons.	Steel, other than rails, net tons.	Total steel product, net tons.	
Allegheny,	6	20	8	5	0	13	6	238	1,301	$783,082	143,956	52,212	195,158	$5,611,900
Cambria,*	2	7	6	3	2	1	7	285	4,545	1,748,902	100,974	50,000	150,974	2,900,000
Dauphin,*	3	7	4	4	2	0	3	291	2,425	1,142,872	161,082	25,000	186 082	4,800,000
Lackawanna,*	5	11	9	6	0	23	5	230	1,914	816,741	152,835	855	153.690	4,408.335
Northampton,*	5	7	8	4	0	10	3	300	2,124	853,909	134,041	31,342	165,383	5,474,985
	21	52	35	22	4	47	24	269	12 309	$5,345,506	692,888	159,409	851,287	$23,195,220
Reports from the same manufacturers for 1884, ...											707,573	135,904	843,477	Not stated.
Increase, ...											.	23,505	7,810	
Decrease, ...											14,685			

The total production of steel and iron rails in Pennsylvania for 1885, per report of James M. Swank, was 743,761 net tons. The total production of Bessemer steel ingots in Pennsylvania for 1885 was 85,625 net tons.

In counties marked *, the employés and wages include all departments, blast furnaces, rolling-mills, machine-shops, &c., but the product and value thereof do not include any manufactures outside of the steel department proper. The above returns include all the Bessemer steel-mills in the State where Bessemer steel is the chief product of manufacture.

The total annual wages paid, if divided share and share alike among all employés, would give to each about $434.

There were 275 common laborers who received but 95 cents per day, 641 who received from $1 00 to $1 35 per day, 766 who received $1 00 per day, 410 who received $1 10 per day, 12 who received 75 cents per day, and 4 who received 60 cents per day. Superintendents received from $5 00 to $7 00 per day. Extra skilled workmen received from $2 50 to $4 50 per day. Helpers, masons, painters, carpenters, and others received from $1 35 to $2 50 per day. The highest wages received was paid to two hammer-men, $5 00 per day each.

CRUCIBLE STEEL.

TABLE *showing the number of persons employed, days employed, wages paid, value of material consumed, and value of product in the crucible steel manufactories, compiled from the reports of twenty-one operators made to this Bureau for the year ending December 31, 1885.*

County.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of raw material consumed.	Value of product.
Allegheny,	8	286	3,020	$1,684,098	$2,762,384	$5,353,429
Armstrong,	1	300	62	30,000	100,000	150,000
Beaver,	2	253	699	303,000	891,000	1,374,000
Philadelphia,	5	266	706	408,341	461,252	859,861
Total, 1885,	16	276	4,487	$2,425,439	$4,214,636	$7,737,290
Total, 1884,	22	280	5,051	2,879,285	Not stated.	9,580,335
Decrease,	6	4	564	$454,846	. . . . .	$1,843,045

Two operators, not included in the above table, reported under the head of "rolling-mills;" one under the head of "manufacturers;" one reported as "not in operation," and one failed to report. Nothing is included in the above table except reports coming under the head of crucible steel. As some of the operators reported the value of the raw product only, the value of the manufactured product would be in excess of the amount as stated in the table.

The average highest wages paid to highest skilled labor was $4 00 per day, and the average lowest wages, not counting the wages of boys, was $1 25.

Of the total number of employés, there were about 800 common laborers and about 300 boys, the latter receiving about 80 cents per day. The annual wage fund, if divided share and share alike, would give to each employé about $540 per annum, or about $10 40 per week. Common laborers are better paid in this industry than they are in any other branch of the iron and steel manufacturing business. The lowest wages reported was $1 25 per day, and many of them received $1 50 and $1 75 per day. The average wages paid to employés above the rank of common laborers and below the rank of highest skilled labor was $2 25 per day.

The total production of open-hearth steel ingots and direct castings in Pennsylvania in 1885, as per report of James M. Swank, was 94,898 net tons; in addition to this, there were 1,446 net tons of steel made by minor processes.

BLOOMARIES AND FORGES.

TABLE *showing the number of refineries, fires, and hammers, men employed, days in operation, annual wages paid, value of material consumed, production and value of product, compiled from the reports of twenty operators made to this Bureau for the year ending December 31, 1885.*

COUNTIES.	Number of establishments.	Number of refineries.	Number of fires.	Number of hammers.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Number of tons of blooms, 2,464 pounds.	Value of material consumed.	Value of product.
Berks,	4	4	22	7	148	60	$16,193	1,736	$51,103	$76,007
Centre,	3	2	22	3	116	70	11,989	1,511	53 856	73,717
Chester,	1		4	1	173	14	3,730	607	15,044	21,740
Cumberland,	1	1	6	1	138	14	3 882	410	17,698	21,180
Dauphin,	1	1	5	1	52	16	1,000	145	4,100	5,600
Franklin,	1	1	8	2	211	29	12,914	1,309	42,553	60,857
Perry,	1	1	7	1	225	33	12,000	1,300	40,000	58,000
Total for 1885,	12	10	74	16	166	236	$61 708	7,018	$224 354	$317,101
Total for 1884, from same oper's,	20	15	111	24	172	455	194,240	13,055	*	*
Decrease,	8	5	37	8	6	219	$132,532	6,037		

*Not stated.

Seven operators reported their furnaces as being idle in 1885, and one did not report.

Highest wages paid per day, $5, to run-out men; lowest wages paid per day, 75 cents, to common laborers; average highest wages paid per day, $3 60; average lowest wages paid per day, $1 10. If the amount of the annual wages paid was divided share and share alike among all the employés, each would have received about $261 per annum.

Total tons of 2,000 pounds of blooms made from pig and scrap iron in Pennsylvania, as per report of James M. Swank for 1885, 15,462.

FOUNDRIES AND MACHINE-SHOPS.

TABLE *showing the number and capacity of cupolas, amount of iron and brass castings, value of material consumed, value of product, number of persons employed, number of days worked, and annual wages paid compiled from the reports of five hundred manufacturers made to this Bureau for the year ending December 31, 1885.*

COUNTIES.	Number of establishments.	Number of days in operation.	Number of persons employed.	Number and capacity of cupolas in tons.	Amount paid in wages.	Number of tons of iron castings.	Number of pounds of brass castings.	Value of material consumed.	Value of product.
Allegheny,	40	280	3,223	74—1,335	$1,731,265	46,765	2,219.908	$2,173,258	$4 584,893
Armstrong,	3	220	8	3— 6	2,900	300		5,000	12,500
Beaver,	3	200	62	3— 11	20,070	1,630		24,800	77,600
Berks,	13	275	1,476	26— 329	647,065	21,586	266 212	804,320	1,774,812
Bedford,	4	180	13	4— 7	2,509	108	150	2,120	8 150
Blair,	4	270	52	5— 78	18,949	706	8,555	19,050	46,900
Bucks,	2	220	79	2— 14	23,580	690	150	33,862	75,000
Bradford,	3	300	28	3— 5	6,475	190	2,500	5,700	25 000
Butler,	3	220	9	3— 3	2,575	150		2 200	13,500
Cambria,	2	180	11	2— 7	4 372	240		4,900	11,250
Cameron,	1	300	9	1— 4	4.000	60	1,350	6,500	14,000
Carbon,	3	250	113	4— 30	47.886	1,432		35,727	97,481
Centre,	2	295	30	2— 6	11,700	226	32,294	7,789	35,094
Chester,	3	300	66	3— 9	29,812	950	300	27,725	74,881
Clarion,	3	175	10	3— 3	1,791	63		1.375	5,910
Clearfield,	4	300	41	4— 18	16,860	532	8,900	15,300	45,150
Clinton,	6	275	60	7— 23	28,700	967	1,900	27,846	96,400
Columbia,	4	280	45	5— 19	14,164	674		#22,586	47,841
Crawford,	8	300	267	9— 29	113,992	2 333	10,777	96,515	341,888
Cumberland,	3	200	98	4— 29	37,450	597		56,400	103.000
Dauphin,	8	244	691	11— 85	186,160	3,581	45,393	263,192	520.553
Delaware,	4	300	598	6— 36	305,114	797	88,119	290,772	702,418
Erie,	10	295	1,318	20— 257	656.025	13,285	311,336	655,833	1,787.220
Fayette,	3	280	57	4— 8	26,646	420	6,000	20.726	98,200
Franklin,	5	220	557	6— 39	148 512	451	5	177,033	528,075
Fulton,	1	160	2	1— 1	400	24		390	2,400
Greene,	2	275	9	2— 3	3,000	60		3,490	9,500
Huntingdon,	3	301	9	3— 5	3,225	129		4,000	11,550
Indiana,	5	280	37	5— 12	9,325	895	500	14,535	37,200
Jefferson,	1	225	9	1— 1	3,761	50		1,000	6,000
Juniata,	4	100	9	4— 4	605	62		900	2.700
Lackawanna,	8	295	1 092	13— 69	411,970	9,228	151,996	215 449	854,767
Lancaster,	14	265	434	16— 84	177,916	3,618	4.600	187,066	565,737
Lawrence,	3	226	110	4— 20	53,665	1,560	2 000	39,000	117,600
Lebanon,	3	260	160	4— 42	44,574	1,540	8 000	79,233	194,248
Lehigh,	9	279	403	22— 166	146.443	12,399	1,978	339,552	642,501
Luzerne,	6	300	251	8— 44	91,908	2,663	14,600	117,144	287,079
Lycoming,	7	300	243	7— 22	85,784	1,563	18,277	83,497	223 258
McKean,	2	300	83	2— 6	51,200	335	9 000	107,800	212,000
Mercer,	3	193	13	4— 18	3,879	163	3,584	3 400	9,830
Mifflin,	1	200	3	1— 3	1.000	40		1,100	3,500
Monroe,	2	300	13	2— 4	6,357	125	1,500	5 800	22,000
Montgomery,	9	260	579	9— 91	265,417	5,986	6 187	289,156	694,672
Montour,	2	305	35	2— 10	13,944	379	2.400	16,500	43,929
Northumberland,	6	168	318	8— 39	41,268	1,453	16,704	188.636	255.456
Northampton,	5	300	90	7— 20	31,775	1,000	1,000	31,522	82.961
Perry,	4	175	13	5— 5	3,297	154	50	1,930	10,000
Philadelphia,	31	272	4,231	51— 467	2,047,224	31,732	343.619	811 826	4,149,139
Schuylkill,	5	300	85	6— 36	32,461	816	9,551	36,433	74 467
Somerset,	1	200	6	1— 2	2,260	150		500	4,500
Susquehanna,	2	93	4	2— 4	115	10		265	800
Tioga,	5	307	21	5— 13	8,450	600	6,260	22,000	54.650
Union,	2	210	35	2— 5	10,968	310	381	25,500	64,247
Venango,	2	309	27	2— 5	13,028	225	460	3,000	21 600
Warren,	2	267	92	2— 10	45,323	1,410	1,000	50,300	169 000
Washington,	4	285	60	4— 10	16,655	317	1,048	12,569	35,170
Wayne,	1	250	3	1— 2	825	38		900	2.400
Westmoreland,	1	275	1	1— 2	500	50		1,000	3 000
Wyoming,	2	300	10	2— 2	2.400	27	100	1,250	4,600
York,	3	304	275	8— 72	88,153	3,597		119,502	420,000
Total, 1885,	305	275	17,686	431 3,689	$7,807,657	181,438	$3 548 644	$7,606 614	$19,420,197

Owing to the different arrangement of gathering statistics, no comparison can be made with 1884.

The above table is compiled from returns made by manufacturers of stoves, heaters, boilers, engines, farming implements, &c.

Factories and machine-shops, where no foundry is attached, will be found elsewhere under their proper heading.

The annual wage fund, if divided share and share alike among all the employés, would give each about $440 per annum.

This is higher than the general average wage fund, because, first, there are more actual working days, and, second, the proportion of skilled to unskilled labor is greater than in most manufacturing or mining industries.

BOILERS AND GENERAL MACHINERY.

TABLE *showing the number of days in operation, number of persons employed, annual wages paid, value of material consumed, and value of product, compiled from the reports of seventy-five operators made to this Bureau for the year ending December 31, 1885.*

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of materials consumed.	Value of product.
Allegheny,	8	300	133	$52,274	$52,944	$116,713
Armstrong,	1	300	2	720	1,200	3,200
Berks,	8	266	112	43,838	48,322	121,492
Blair,	2	230	20	4,921	4,400	15,000
Cambria,	1	300	8	4,000	4,500	10,000
Chester,	1	225	5	2,137	800	3,500
Delaware,	1	312	12	6,015	9,760	20,000
Erie,	6	292	420	201,428	341,326	692,611
Lebanon,	4	300	93	26,466	44,836	94,169
Lehigh,	2	307	43	14,750	15,580	39,303
Lycoming,	4	300	28	11,750	25,650	48,600
Montgomery,	1	306	39	17,000	49,000	71,000
Northampton,	1	306	15	6,511	6,643	15,139
Northumberland,	2	290	53	22,000	20,500	60,615
Philadelphia,	29	300	626	327,737	334,853	979,285
Schuylkill,	2	303	25	16,890	34,000	64,797
Warren,	1	313	3	1,878	3,000	5,000
York,	1	300	2	720	800	2,000
Total, 1885,	75	290	1,639	$761,035	$1,008,114	$2,362,424

The annual wage fund, if divided among all the employés, share and share alike, would give to each about $465 per annum, or about $9 00 per week. The highest wages paid was $3 00 per day. The highest average wages paid was $2 25 per day. The lowest wages was 50 cents per day, to

apprentices, and the lowest average wages paid per day was $1 15. Helpers and strikers averaged $1 25 per day, and common laborers $1 10 per day. Skilled labor is in excess of unskilled.

The above table includes those establishments only that are not connected with an iron or brass foundry.

Under the head of "foundries and machine-shops" are included many of the largest establishments for the manufacture of boilers, engines, and general machinery. Owing to the inability of operators to give separate returns for foundry and machine-work, it was thought advisable to classify those establishments under the head of "foundries and machine-shops."

MISCELLANEOUS.

NOTE.—The following tables were compiled from reports of operators who had kept accurate account of their business. They are not presented as a census, but simply as tables showing the condition of business for the past year in representative firms of special industries. Under the head of rolling-mills, returns have been made of bolts, nuts, rivets, and wire. Where the same is reported in these tables, the reports are from minor establishments unconnected with rolling-mills.

Axes, Shovels, Spades, and Saws.

TABLES *showing the number of persons employed, days in operation, wages paid, and the value of the product in the minor branches of the iron industry, compiled from reports made to this Bureau by two hundred operators for the year ending December 31, 1885.*

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Beaver,	3	295	520	$268,970	$686,763
Blair,	1	130	4	317	1,575
Clinton,	1	300	60	22,500	47,500
Luzerne,	1	280	13	5,748	13,048
Mifflin,	1	300	225	72,000	180,000
Montgomery,	1	230	85	35,000	180,000
Northampton,	1	300	23	10,665	30,000
Philadelphia,	4	307	1,206	664,139	1,825,384
Total, 1885,	13	295	2,136	$1,079,339	$2,964,270

The above table is necessarily of mixed products, manufacturers having kept no account of any special article of manufacture. Some manufac-

tured saws and shovels, some axes and shovels, and some manufactured axes, saws, shovels, and spades. One firm in Philadelphia manufactured saws only. This had to be included with the others, to avoid exposure of their business, which is very extensive.

The annual wage fund, if divided share and share alike, would give each employé about $509 per annum, or about $9 80 per week. Wages to common laborers average $1 30 per day: average highest wages paid, about $2 50.

Brass, Bronze, and Copper.*

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Allegheny,	3	300	115	$74,987	$382,830
Berks,	1	302	10	5,358	29,771
Northampton,	1	307	23	25,911	93,013
Philadelphia,	9	280	319	155,060	534,439
Total, 1885,	14	300	467	$261,316	$1,040,053

*Brass, bronze, and copper industries are so intimately connected with iron that they are included in the products. Much of that which was reported as brass or bronze was but a thin coating to iron, and a large portion of the annual wage fund was paid to machinists and other workers in iron.

The annual wage fund in the above industry, divided share and share alike, would give each employé about $560 per annum, or about $13 33 per week. Skilled workers predominate.

Bolts, Nuts, Spikes, and Rivets.

Allegheny,	7	228	280	$82,565	$435,484
Beaver,	2	245	160	68,000	222,168
Berks,	2	300	125	44,355	218,308
Lebanon,	1	300	150	36,860	151,017
Philadelphia,	4	275	687	232,800	887,410
Total, 1885,	16	270	1,402	$464,580	$1,914,487

The annual wage fund, divided share and share alike, would give to each employé about $331 per annum, or about $6 37 per week. This industry employs many boys, the average daily wages of which is about 60 cents.

The product (bolts, nuts, &c.) is exclusive of that previously reported under the head of rolling-mills.

Bridges.

County.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Allegheny,	3	235	299	$137,500	$529,242
Beaver,	1	230	15	8,298	47,300
Bradford,	1	260	275	107,604	606,000
Chester,	1	275	150	90,000	770,000
Philadelphia,	1	270	11	3,200	16,000
York,	1	120	7	2,000	9,500
Total, 1885,	8	240	757	$348,602	$1,977,542

The annual wage fund, divided share and share alike, would give to each employé about $461 per annum, or about $9 per week.

Builders' Hardware.

Allegheny,	2	280	45	$18,107	$53,000
Chester,	1	300	19	5,600	9,700
Philadelphia,	2	304	31	15,346	62,950
Total, 1885,	5	295	95	$39,053	$125,650

The annual wage fund, divided share and share alike, would give to each employé about $411 per annum, or about $8 per week.

Chains.

Allegheny,	1	150	30	$6,000	$20,000
Philadelphia,	2	185	56	16,500	107,000
York,	1	200	2	500	1,200
Total, 1885,	4	178	88	$23,000	$128,200

The annual wage fund, divided equally, or share and share alike, would give to each employé about $261, or about $5 per week. This low average is caused by loss of time; makers of heavy chains are paid from $2 25 to $5 per day; laborers and helpers from $1 to $1 50 per day.

Elevators.

Allegheny,	1	300	30	$18,000	$60,000
Philadelphia,	2	300	62	39,176	138,822
Total, 1885,	3	300	92	$57,176	$198,822

The annual wage fund, divided share and share alike, would give to each employé about $622 per annum, or about $12 per week. This industry fairly represents full working time; the average wages bring about $2 per day.

Electric Supplies.

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Allegheny,	1	250	7	$2,000	$10,000
Dauphin,	1	300	1	300	2,500
Total, 1885,	2	260	8	$2,300	$12,500

The annual wage fund, divided share and share alike, would give to each employé about $288 per annum, or about $5 50 per week.

Files and Rasps.

Beaver,	1	180	170	$51,169	$91,751
Berks,	1	300	6	2,000	3,500
Philadelphia,	3	285	284	111,514	232,139
Total, 1885,	5	255	460	$164,683	$327,390

The annual wage fund, divided share and share alike, would give to each employé about $358 per annum, or about $7 per week.

Forgings, (Blacksmiths.)

Allegheny,	1	270	60	$20,000	$47,000

The annual wage fund, divided share and share alike, would give each employé about $333 per annum, or about $6 43 per week.

Furnaces, (Sheet-Iron.)

Philadelphia,	1	300	25	$12,500	$54,000

The annual wage fund, divided share and share alike, would give to each employé about $500 per annum, or about $9 68 per week. Furnaces are reported under the head of foundries.

Gas and Steam Fixtures.

County.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Allegheny,	3	300	66	$34,968	$99,020
Philadelphia,	2	305	137	57,975	142,222
Total, 1885,	5	303	203	$92,943	$241,242

The annual wage fund, divided share and share alike, would give each employé about $458 per annum, or about $9 per week.

Galvanized Ware.

Philadelphia,	1	308	80	$35,249	$50,000

The annual wage fund, divided share and share alike, would give to each employé about $440 per annum, or $8 45 per week.

Guns and Rifles.

Lebanon,	1	250	5	$1,200	$2,000

The average wage fund, divided share and share alike, would give to each employé about $240 per annum, or about $4 60 per week.

Injectors.

Philadelphia	2	305	10	$5,781	$10,740

The annual wage fund, divided share and share alike, would give to each employé about $578 per annum, or about $11 per week.

Locks and Safes.

Allegheny,	3	265	242	$82,048	$208,032
Lancaster,	1	270	23	9,000	22,818
Philadelphia,	3	307	155	92,241	165,727
York,	1	294	63	24,496	67,092
Total, 1885,	8	284	483	$207,785	$463,669

The annual wage fund, divided share and share alike, would give each employé about $430 per annum, or about $8 25 per week.

Pipes and Tubes.

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Allegheny,	1	300	1,500	$600,000	$5,000,000
Berks,	1	288	635	226,307	1,400,000
Dauphin,	1	225	800	221,000	1,500,000
Delaware,	1	32	148	9,586	37,962
Lehigh,	1	288	12	5,716	45,720
Philadelphia,	1	300	375	171,000	781,786
Venango,	1	300	67	37,432	90,000
Total, 1885,	7	295	3,437	$1,271,041	$8,855,468

The annual wage fund, divided share and share alike, would give each employé about $370 per annum, or about $7 00 per week.

Railings, (Fence.)

Berks,	1	305	4	$2,200	$3,949
Erie,	1	300	3	1,600	4,000
Philadelphia,	1	300	14	7,500	24,000
Total, 1885,	3	300	21	$11,300	$31,949

The annual wage fund, divided share and share alike, would give each employé about $538 per annum, or about $10 35 per week.

Scales and Testing-Machines.

Philadelphia,	4	295	106	$57,630	$176,935
York,	1	310	10	5,000	20,000
Total, 1885,	5	305	116	$62,630	$196,935

The annual wage fund, divided share and share alike, would give each employé about $540 per annum, or about $10 40 per week.

Screws.

Philadelphia,	1	305	24	$8,320	$21,532

The annual wage fund, divided share and share alike, would give each employé about $347 per annum, or about $6 67 per week.

Shafting, Springs, and Axles.

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Allegheny,	3	295	327	$158,125	$696,436
Erie,	1	150	3	1,200	2,000
Philadelphia,	8	282	192	109,054	398,965
Total, 1885,	12	290	522	268,379	$1,097,401

The annual wage fund, divided share and share alike, would give each employé about $513 per annum, or about $10 00 per week

Ships and Ship Engines.

Philadelphia,	1	307	729	$393,297	$812,640

The annual wage fund, divided share and share alike, would give each employé about $540 per annum, or about $10 40 per week.

Other ship and engine builders were reported under the head of "rolling-mills" and "general machinery."

Smelting, (Bronze and Brass.)

Philadelphia,	2	302	19	$13,342	$115,139

The annual wage fund, divided share and share alike, would give each employé about $700 per annum, or about $13 40 per week.

Extra skilled labor is employed in this industry.

Steel Pens.

Philadelphia,	1	300	30	$8,500	$25,000

The annual wage fund, divided share and share alike, would give each employé about $283 per annum, or about $5 44 per week.

Tin Cans and Boxes.

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Berks,	1	300	3	$766	$2,000
Philadelphia,	5	270	119	43,921	157,732
Total, 1885,	6	275	122	$44,687	$159,732

The annual wage fund, divided share and share alike, would give each employé about $366 per annum, or about $7 00 per week.

Tools—Edge and Blunt.

Allegheny,	6	264	204	$102,897	$377,196
Beaver,	1	200	200	25,000	*50,000
Butler,	1	313	19	14,716	75,763
Chester,	1	300	1	150	300
Crawford,	1	300	3	2,500	13,000
Erie,	1	250	68	17,492	63,942
Lancaster,	2	250	11	4,338	10,300
McKean,	3	287	28	22,432	94,717
Montgomery,	1	200	50	21,000	60,000
Philadelphia,	9	300	274	130,806	348,869
Total, 1885,	26	267	858	$341,331	$1,094,087

*Cutlery.

The annual wage fund, divided share and share alike, would give each employé about $398 per annum, or about $7 66 per week.

Wire Goods.

Allegheny,	3	275	326	$82,120	$941,000
Erie,	1	307	40	15,000	45,000
Lackawanna,	2	270	7	3,200	13,339
Luzerne,	2	290	20	9,461	25,949
Northampton,	2	280	306	141,482	983,200
Philadelphia,	4	300	132	46,850	323,526
Schuylkill,	2	255	10	3,190	15,000
Total, 1885,	16	280	841	$201,303	$2,347,008

The annual wage fund, divided share and share alike, would give each employé about $240 per annum, or about $4 62 per week.

This industry employs many boys, who receive from 40 cents to 80 cents per day.

Wheelbarrows, (Steel.)

Dauphin,	1	265	11	$4,494	$27,869

The annual wage fund, divided share and share alike, would give each employé about $409 per annum, or about $7 86 per week.

TABLE *showing the rate of wages paid if annual wage fund was divided share and share alike to each employé, the number to whom wages are paid, and the actual number of days employed during the year ending December 31, 1885, compiled from the reports of employers made to this Bureau.*

INDUSTRIES.	Number of employés.	Weekly wages.	Number of days employed during the year.
Iron ore,	2,026	$4 00	235
Blast furnaces,	7,634	7 79	250
Rolling-mills,	32,751	8 15	226
Bessemer steel,	12,309	8 35	269
Crucible steel,	4,487	10 40	276
Bloomaries and forges,	236	5 00	166
Foundries and machine-shops,	17,686	8 46	275
Boilers and general machinery,	1,639	9 00	290
Axes, saws, &c.,	2,136	9 80	295
Brass, bronze, and copper,	467	13 33	300
Bolts, nuts, &c.,	1,402	6 37	270
Bridges,	757	9 00	240
Builders' hardware,	95	8 00	295
Chains,	88	5 00	178
Elevators,	92	12 00	300
Electric supplies,	8	5 50	260
Files and rasps,	460	7 00	255
Forgings, (blacksmiths',)	60	6 43	270
Furnaces, (sheet-iron,)	25	9 68	300
Gas and steam fixtures,	203	9 00	303
Galvanized ware,	80	8 45	308
Guns and rifles,	5	4 60	250
Injectors,	10	11 00	305
Locks and safes,	483	8 25	284
Pipes and tubes,	3,437	7 00	295
Railings, (fence,)	21	10 35	300
Scales and testing-machines,	116	10 40	305
Screws,	24	6 67	305
Shafting, springs, and axles,	522	10 00	290
Ships and engines,	729	10 40	307
Smelting, (bronze and brass,)	19	13 40	302
Steel pens,	30	5 44	300
Tin cans and boxes,	122	7 00	275
Tools, (edge and blunt,)	858	7 66	267
Wire goods,	841	4 62	280
Wheelbarrows, (steel,)	11	7 86	265
Total employés,	91,869		

OIL REFINERIES.

TABLE *showing the number of days in operation, persons employed, amount paid in wages, number of stills, capacity of same with production, value of materials consumed, and value of product, compiled from the reports of thirty-five Refineries made to this Bureau for the year ending December 31, 1885.*

COUNTY.	Number of refineries.	Number of days in operation.	Average number of persons employed.	Amount paid in wages.	Number of stills.	Refining capacity in barrels per day, forty-two gallons to the barrel.	Amount of oil refined in barrels of forty-two gallons.	Value of materials consumed.	Value of product.	Number of barrels, cases, cans, &c., made.*
Allegheny,	7	290	477	$186,630	30	12,535	888,181	$2,287,386	$2,554,276	144,446
Beaver,	3	147	16	6,749	7	385	25,670	81,391	99,436	
Butler,	1	282	2	1,200	1	10	2,820	3,233	7,106	
Crawford,	5	285	189	104,342	29	2,742	507,760	1,079,194	1,234,888	45,209
Erie,	1	307	35	24,128	5	500	126,000	157,500	366,984	82,725
Philadelphia,	4	300	2,073	861,321	81	12,900	2,801,393	8,067,032	9,615,539	12,244,296
Venango,	7	285	428	185,492	38	2,825	700,190	927,144	1,159,944	102,763
Warren,	1	125	4	2,800	3	125	10,000	19,000	23,000	
	29	252	3,224	$1,372,662	194	32,022	5,062,014	$12,621,880	$15,061,173	12,619,439

*In the total of barrels, cans, and cases manufactured for the purpose of holding and transporting oil, about 11,000,000 were manufactured from tin.

The majority of the employés worked about three hundred days. The annual wage fund, if divided share and share alike among all the employés, would give each about $425 per annum, or about $8 12 per week. The average highest wages paid was $3 00 per day; the lowest average about $1 20; average wages paid was about $1 50.

There was an increase of 1,169,016 barrels of refined oil over 1884, and a decrease of 696 employés, and $11,113 in wages paid.

The net cost (not counting cost of crude oil) to convert one barrel of petroleum into the same amount of refined oil was about forty-five cents per barrel.

The exports of refined oil for illuminating purposes in 1885 was about 10,567,653 barrels. The total exports of crude petroleum for 1885 was about 1,934,026 barrels. The total exports of petroleum, crude, refined, and its products, such as naphtha, illuminating, lubricating, and residuum, was about 13,287,777 barrels. The estimated value of these exports was $49,214,285.

The average number of producing wells in 1885 was about 22,000, but many of these were not paying expenses. The average production was about 55,000 barrels per day, or an average production of 2½ barrels per day to each well. The best estimate would not place the number of producing wells proper above 17,000, and probably about 4,000 of this number were pumping the great bulk of the oil.

LUMBER AND ITS PRODUCTS.

Agricultural Implements.

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Allegheny,	1	274	85	$54,026	$139,591
Armstrong,	1	300	2	500	1,200
Berks,	2	200	3	330	1,088
Bucks,	1	296	22	8,150	20,040
Cambria,	1	30	5	150	1,000
Centre,	1	240	5	2,100	6,000
Chester,	2	275	42	20,400	81,500
Cumberland,	1	300	3	1,000	3,500
Dauphin,	1	150	3	200	1,500
Erie,	2	285	66	32,025	85,200
Franklin,	1	240	3	329	2,000
Lancaster,	5	250	66	21,695	58,600
Lycoming,	2	225	5	950	4,320
Montgomery,	3	279	83	44,168	123,679
Northampton,	1	312	67	32,760	75,000
Northumberland,	1	300	5	200	1,355
Philadelphia,	6	290	274	159,046	450,345
Pike,	1	200	2	500	2,000
Union,	1	225	3	600	6,000
York,	5	300	425	168,745	608,100
Totals,	39	350	1,169	$547,874	$1,672,018

NOTE.—In the industry of foundries and machine-shops, a number of agricultural implement establishments, not reported above, are included. The average annual wage fund, if divided share and share alike, would give to each employé about $468, or an average of about $9 per week.

Barrels and Casks.

Allegheny,	3	287	55	$30,536	$97,106
Beaver,	1	250	9	2,253	10,257
Bedford,	1	295	25	5,200	14,000
Columbia,	1	175	5	1,225	7,000
Dauphin,	1	200	3	390	2,725
Erie,	1	200	3	400	1,500
Mercer,	1	54	12	1,459	4,307
Philadelphia,	2	300	225	83,230	438,412
Venango,	1	225	50	27,769	123,417
Totals,	12	220	387	$152,462	$698,724

Note.—The average annual wage fund, if divided share and share alike, would give to each employé about $394, or an average of about $7 57 per week.

Boat Builders, &c.

County.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Allegheny,	1	313	20	$4,000	$10,000
Clarion,	1	300	3	900	2,000
Erie,	1	150	8	1,800	5,000
Schuylkill,	1	296	14	4,735	15,125
Washington,	1	175	40	9,800	17,000
Wayne,	1	150	5	1,100	3,000
Totals, 1885,	6	230	90	$22,335	$52,125
Totals, 1884,	11	251	203	71,169	272,945
Decrease,	5	21	113	$48,834	$220,820

Note.—The falling-off in this industry is to be accounted for from the fact that the manufacture of boxes is not included this year. The average annual wage fund, if divided share and share alike, would give to each employé about $248, or an average of about $4 77 per week.

Boxes.

Allegheny,	4	290	53	$14,791	$64,166
Adams,	3	260	8	955	5,335
Berks,	5	300	106	19,753	78,902
Bucks,	1	150	1	150	1,000
Dauphin,	1	307	1	26	1,653
Franklin,	1	300	1		720
Lancaster,	17	270	161	28,784	154,202
Lehigh,	3	270	17	3,183	26,700
Luzerne,	1	60	3	50	383
Lycoming,	1	300	6	1,536	10,292
Monroe,	1	300	2	144	4,600
Northampton,	1	150	2	260	800
Philadelphia,	24	300	466	184,756	755,401
Schuylkill,	1	270	6	1,275	5,971
Wayne,	1	250	5	800	5,000
York,	15	300	123	20,318	103,905
Totals,	80	260	961	$276,781	$1,219,030

Note.—In 1884, this industry was not reported except to a slight extent with that of boats. In it is included the manufacture of cigar boxes, pack-

ing boxes, etc. The average annual wage fund, if divided share and share alike, would give to each employé about $288, or an average of about $5 54 per week.

Cars, (Railroad, without Foundry Attachment.)

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Erie,	1	300	18	$5,798	$7,856

NOTE.—The annual wage fund, divided share and share alike, would give to each employé about $322 per annum, or about $6 20 per week. Car-shops with foundry attachments are reported under the head of foundries.

Carriages, Wagons, &c.

Adams,	1	200	5	$1,200	$3,500
Allegheny,	10	300	108	61,324	133,417
Berks	2	309	18	7,500	25,981
Bradford,	7	300	50	14,306	48,724
Bucks,	4	300	24	5,858	21,033
Butler,	1	300	8	3,500	4,500
Cumberland,	5	300	60	24,788	74,500
Dauphin,	5	300	52	18,644	45,617
Erie,	5	290	38	14,061	47,777
Fayette,	2	250	4	950	1,700
Franklin,	4	300	29	8,516	24,500
Indiana,	1	300	6	1,875	3,000
Lackawanna,	2	309	10	5,102	9,800
Lancaster,	8	300	224	63,120	250,815
Lehigh,	1	275	11	2,500	6,000
Lycoming,	2	300	19	8,187	28,836
Mercer,	2	282	15	5,300	14,000
Montgomery.	1	307	8	3,600	7,300
Northampton.	3	300	39	17,502	32,560
Philadelphia,	15	300	544	284,099	775,142
Schuylkill,	2	300	18	5,736	14,350
Union,	5	300	36	7,700	38,800
Venango,	1	290	15	7,000	25,000
Washington.	1	302	16	7,411	8,612
Westmoreland,	1	300	7	2,000	6,000
York,	3	290	17	4,328	14,800
Totals, 1885,	94	290	1,381	$582,107	$1,662,264
Totals, 1884,	62	281	1,092	470,478	1,296,332
Increase,	32	9	289	$111,629	$365,932

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employé about $422, or an average of about $8 11 per week.

Coffin and Casket Manufacturers.

County.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Allegheny,	1	300	160	$95,000	$300,000
Chester,	1	300	50	18,000	40,000
Dauphin,	1	290	60	23,389	100,000
Erie,	1	274	35	11,864	33,512
Lackawanna,	1	300	30	11,367	60,000
Luzerne,	1	288	55	24,000	75,000
Northumberland,	1	309	18	7,058	31,513
Totals, 1885,	7	294	408	$190,678	$640,025
Totals, 1884,	4	306	160	63,630	173,648
Increase,	3	. . .	248	$127,048	$466,377
Decrease,	. . .	12			

Note.—The average annual wage fund, if divided share and share alike, would give to each employé about $467, or an average of about $8 98 per week.

Furniture.

Adams,	1	180	14	$1,773	$6,000
Allegheny,	2	270	149	76,205	178,010
Berks,	1	300	21	10,687	30,000
Bradford,	1	270	68	25,946	51,028
Cambria,	1	228	12	4,800	9,300
Crawford,	1	300	19	8,623	13,455
Dauphin,	1	270	33	11,245	34,088
Erie,	2	275	33	13,500	42,000
Lackawanna,	1	308	18	9,127	17,425
Lancaster,	2	300	13	6,000	8,800
Lehigh,	2	300	130	47,000	105,000
Lycoming,	10	240	907	323,071	865,370
Mercer,	1	130	13	3,552	7,262
Northumberland,	2	275	60	25,200	93,000
Philadelphia,	40	300	1,743	886,598	2,375,641
Susquehanna,	1	300	40	8,000	18,000
Tioga,	1	274	25	8,019	18,203
Warren,	1	250	55	19,353	40,000
Wayne,	1	250	4	900	4,000
Westmoreland,	1	280	25	9,600	40,151
Totals, 1885,	73	265	3,382	$1,499,199	$3,956,733
Totals, 1884,	73	268	3,078	1,365,815	3,562,085
Increase,	. . .	. . .	304	$133,384	$394,648
Decrease,	. . .	3			

Note.—The average annual wage fund, if divided share and share alike, would give to each employé about $444, or an average of about $8 54 per week.

Planing-Mills.

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Allegheny,	24	274	846	$285,971	$1,018,395
Armstrong,	2	250	48	15,000	89,000
Beaver,	6	275	90	35,296	121,000
Bedford,	2	267	22	8,406	50,000
Berks,	3	304	163	67,512	194,792
Blair,	6	244	131	48,088	223,084
Bradford,	5	250	39	15,680	58,620
Bucks,	4	256	41	16,588	55,000
Butler,	2	275	83	30,200	156,000
Cambria,	3	283	55	25,400	66,000
Centre,	3	262	40	20,400	80,800
Chester,	3	240	37	9,780	32,000
Clearfield,	4	279	145	46,180	163,000
Clinton,	2	275	44	8,820	202,400
Columbia,	3	277	55	20,500	70,000
Crawford,	8	258	71	20,779	75,500
Cumberland,	5	252	48	17,225	113,700
Dauphin,	8	280	136	50,382	167,500
Delaware,	3	290	38	15,600	42,400
Elk,	2	260	25	10,880	29,124
Erie,	10	250	140	47,213	310,735
Fayette,	6	270	113	51,729	218,612
Franklin,	4	276	65	21,385	103,650
Greene,	4	231	16	4,650	27,500
Huntingdon,	1	300	20	7,375	40,600
Indiana,	5	242	24	8,031	49,971
Jefferson,	2	242	12	4,000	14,800
Juniata,	1	180	4	500	3,000
Lackawanna,	4	250	86	37,100	144,900
Lancaster,	9	260	147	60,439	226,400
Lawrence,	4	234	23	9,675	41,700
Lebanon,	4	289	83	30,166	110,900
Lehigh,	4	278	61	21,825	78,045
Luzerne,	8	237	108	42,513	179,500
Lycoming,	9	267	333	120,987	512,569
McKean,	3	187	14	3,825	13,432
Mercer,	5	241	79	34,000	185,200
Mifflin,	1	250	6	2,200	12,500
Monroe,	1	285	58	17,042	107,810
Montgomery,	7	292	111	47,629	129,763
Northampton,	5	284	65	27,896	74,591
Northumberland,	4	285	214	70,891	378,933
Perry,	2	250	22	10,260	42,044
Philadelphia,	20	300	689	393,085	952,060
Potter,	1	300	10	4,000	16,000
Schuylkill,	3	280	34	15,345	78,710
Susquehanna,	2	200	5	850	2,000
Snyder,	1	130	3	450	3,000
Somerset,	7	243	38	11,869	88,800
Tioga,	3	295	52	19,388	45,000
Union,	1	150	3	400	2,400
Venango,	2	275	6	4,376	17,019
Warren,	4	241	28	12,775	55,740

Planing-Mills—*Continued.*

County.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Washington,	4	272	42	14,320	51,300
Wayne,	3	250	15	5,600	47,000
Westmoreland,	9	250	78	26,308	309,714
Wyoming,	3	260	7	1,800	5,900
York,	7	282	156	53,829	142,000
Totals, 1885,	268	260	5,127	$2,034,413	$7,812,113
Totals, 1884,	188	256	3,983	1,767,561	5,734,241
Increase,	80	4	1,134	$266,858	$2,077,872

Note.—The average annual wage fund, if divided share and share alike, would give to each employé about $397, or an average of about $7 25 per week.

Saw-

COUNTY.	Number of mills	Number of days in operation.	Number of persons employed	Amount paid in wages.	Power—steam or water.	Horse-power.	Number of saws.	White pine—feet.	Hemlock—feet.	Cherry—feet.
1. Adams,	4	126	9	$1,012	4 W.	35	9	10,000	20 000	. . . .
2. Allegheny,	17	161	208	86.491	17 S.	461	39	6,287,587	5,037,784	508,000
3. Armstrong,	8	124	76	27,595	44 S. W.	160	23	3,687,500	200,650	. . . .
4. Beaver,	4	134	23	6,800	4 S.	100	4	10.000	100,000	. .
5. Bedford,	10	86	42	5,101	55 S. W.	77	11	343,026	138,948	2,000
6. Berks,	6	165	21	3,218	15 S. W.	63	10	.		815
7. Blair,	7	90	146	29,031	5 S. 1 S. W. 1 W.	305	29	1,501,651	2,662 605	798
8. Bradford,	43	126	265	44 365	31 S. 2 S. W. 11 W.	1,320	110	1,763,349	19,942,166	30,796
9. Bucks,	11	198	42	10,609	2 S. 2 S. W. 7 W.	293	20	10,000	365,000	600
10. Butler,	1	30	1		1 W.		1	.		
11. Cambria,	17	65	92	22,704	7 S. 1 S. W. 8 W.	408	27	582 845	3 105,133	31,000
12 Cameron,	10	160	206	68,583	10 S.	475	73	3 760,382	18 674.356	146,000
13. Carbon,	2	192	38	8 652	1 S. 1 W.	80	17	10,000	2,326,897	.
14. Centre,	30	100	234	59,936	14 S 16 W.	691	188	8,288 999	3 939 210	300
15. Chester,	10	140	24	3 154	1 S. 1 S. W. 8 W.	112	26	25,000		2,500
16. Clarion,	15	115	369	48 598	13 S. 1 W.	495	27	17,110,000	2,388 000	. . . .
17. Clearfield,	29	130	742	207,143	24 S. 5 W.	1 260	325	33 569,623	43,845.735	2,781
18. Clinton,	12	126	150	39,934	5 S. 7 W.	278	83	2,461,327	14,071,806	3,175,000
19. Columbia,	2	180	9	1 080	1 S. 1 W.	45	2	47,500	42,000	. . .
20. Crawford,	28	154	201	56,015	24 S. 1 S. W. 3 W.	913	98	4,438,152	13,620,630	83,667
21. Cumberland,	3	100	18	3,684	2 S. 1 W.	55	9	7,000	82,232	. . . .
22. Dauphin,	7	200	94	28,690	6 S. 1 W.	329	27	3,561,232	2,032,812	. . . .
23. Delaware,	3	250	55	15,875	1 S. 2 W.	85	11	500,000	1,200,000	. . . .
24. Elk,	26	200	526	182,256	17 S. 3 S. W. 6 W.	1,471	107	10,431,011	74,367,768	5,126,000
25. Erie,	23	155	191	45,281	16 S. 1 S. W. 6 W.	596	56	3,605,397	5.548,145	75,000
26. Fayette,	9	136	93	25,969	8 S. 1 W.	311	29	387,446	575,000	35 700
27. Forest,	15	126	244	61 778	12 S. 1 S. W. 2 W.	730	37	5,760,600	16,530,120	400,918
28. Franklin,	7	123	9	815	1 S. 6 W.	48	12	5,500	5,500	. . .
29. Fulton,	1	200	1	100	1 W.	30	1	10,000	. . . .	
30 Greene,	2	100	4	430	2 S.	40	3			10.900
31. Huntingdon,	10	66	70	21,370	8 S. 2 W.	180	12	1,789,081	1,025,000	10,000
32. Indiana,	21	86	143	17,040	2 S. 3 S. W. 16 W.	466	47	1,504,107	2,561,108	21,500

Mills.

Ash—feet.	Chestnut—feet.	Walnut—feet.	Oak—feet.	Other lumber—feet.	Shingles—thousand.	Lath—thousand.	Staves—thousand.	Pickets, R. H., &c.,—thousand.	Value of product.	Number.
1,870	200,000	2 460	202 840	20,500	160,000	44,000		19,400	$4.249	1
5,000	5 000	5,000	4 279 701	1,941.289		2,499 600	1,132,505	195 025	382,935	2
	350		565.296	100,000	238.500	660,474	.	5 000	148 183	3
15,000	4,000	17,000	417,000	10,000	120,000	20,000	. . .	4,000	53,660	4
2,000	14.000	5,000	692.186	149,100	5,000	99 800	. . . .	16 400	16,710	5
9,518	59,390	15,708	445,001	38,433		22,626	. . .	8,123	9.958	6
469	1,838		277,137	113,920	959,000	1,715,980	. . .	231,040	108,003	7
181,288	86,733	6,000	306,228	1,779,073	2,798.000	2,677,000	3,000	34,000	197 999	8
36,200	56 500	66,358	816,129	591,148	. . . .	88,000	. . . .	16,000	42,530	9
		2,111	5,366			3,478			126	10
57,000	100,000	1,000	284,212	191,238	1,525,000	898,000	25,000	41,900	57 760	11
170,000	. .	. . . .	215,753	300,000	550,000	3,995,000	. .	55.423	435.200	12
. . . . .	10,000			2,311,397		2,059,100	. .	338,020	62,846	13
500	56,000	2,000	1,314,325	4 276 150	3,563,500	1,309,100	4,470	635,750	229 080	14
7,800	42 350	14 680	131,950	38 875	.	35,573		5,500	6,225	15
1,000	60,000	.	2,455 000	50,000	300,000	3,250,400	.	29 000	273,998	16
115,479	17,547	.	1,455,948	1,700 663	20,947.850	11.406,800	2,222,910	975,900	893 151	17
26,500	6,230	1,655	292,002	102,849	2,410,839	1,266,146	1,300,000	887,869	299,325	18
.	5,000	. .	11,500	. .	. .	. .	. . . . .		1,690	19
155.264	305,328	2,000	641,100	1,756,368	3,844,000	1,900,000	. . . .	5,000	283,580	20
. . . .	6,000	. .	8 000	36,000		25,000	223,800	. . . .	12,457	21
. . . .	. .		1,056,063	50,000	2,782,000	1 187,900	13,000	281,750	166,997	22
. . .	1,748	3,405	112,771	8,195	.	731	. .	10,000	43,750	23
290,000	474,000	.	1,798,508	2,777,086	2,461,600	23,191,300	861,200	2,746,000	999,693	24
426,390	81,000	6,600	227,139	1,147,923	392,000	779,000	400,000	841,000	156,401	25
44,320	54,000	49,500	1,154 263	822,991	. .	44 600	. . . .	20,000	65,100	26
205,532	70,531	. . . .	150,000	234,040	570,000	1,000,000	. . . .	. .	203,700	27
5,000	15,000	6,000	244,055	24,670	30 000	46,800	. . . .	. . . .	4,103	28
.	. . . .	500	500	5,000	. . . . .	500,000	. . . .	. . . . .	1,500	29
20,000		11,200	107,000	100 000	. . . . .	800,000	. . . .	. . . . .	5,860	30
41,250	15,700	20,000	1,846,000	18,617	. . . . .	. . .	. . . .	. . . .	118,340	31
7,000	15,000	40,000	1,212,458	116,525	1,520,000	1,427,000	30,000	55,000	89,260	32

Saw-Mills—

COUNTY.	Number of mills.	Number of days in operation.	Number of persons employed	Amount paid in wages.	Power—steam or water.	Horse-power.	Number of saws.	White pine—feet.	Hemlock—feet.	Cherry—feet.
33. Jefferson,	23	107	379	$104 869	15 s. 3 s. w. 5 w.	905	100	12,263 119	16,282 000	48 000
34. Juniata,	6	90	42	3 037	2 s. 2 s. w. 2 w.	50	7	13 500	2 000	....
35. Lackawanna,	14	107	85	17,615	9 s. 1 s. w. 4 w.	350	28	74,245	8,879,277	5,000
36. Lancaster,	12	175	56	14 433	5 s. 7 w.	245	27	470,800	614,000	15,500
37. Lawrence,	2	90	9	1,030	2 s.	45	2			10,000
38. Lebanon,	1	30	3	60	1 s.	25	1			
39. Lehigh,	9	146	14	1 735	1 s. w. 8 w.	70	16	22,254	5 000	4 450
40. Luzerne,	9	182	47	20 067	5 s. 1 s. w. 3 w.	270	25	1,095,010	1,095 179	100,000
41. Lycoming,	73	126	1,382	337,388	39 s. 8 s. w. 26 w.	3,494	941	103 395,761	99 880,839	189,552
42. McKean,	43	138	1,111	342 224	36 s. 4 s. w. 3 w.	1,945	113	7,859,316	94,225 326	4 062,088
43. Mercer,	11	100	48	6,175	11 s.	291	18	370 000	515 000	6,000
44. Monroe,	7	124	23	3,380	2 s. 1 s. w. 4 w.	118	18	58 000	498 000	
45. Montgomery,	2	200	34	17,500	1 s. 1 s. w.	90	3		300 000	....
46. Montour,	1	150	4	780	1 s.	30	1	50,000	200,000	
47. Northampton,	4	217	29	9 526	3 s. 1 w.	142	14	71,000	3 501,000	12,000
48. Northumberl'd,	7	135	90	20.515	4 s. 3 s. w.	280	31	1 628.197	1 810 000	
49. Perry,	9	100	49	10,992	5 s. 4 w.	242	23	830,191	156 498	750
50. Philadelphia,	4	303	99	50,481	3 s. 1 w.	210	20	1,463,691	197,150	. .
51. Pike,	5	160	23	3,400	2 s. 3 w.	80	11	400	2,000,000	
52. Potter,	24	124	291	29,030	17 s. 1 s. w. 6 w.	936	55	391,256	13 752,841	854,435
53. Schuylkill,	5	104	6	776	5 w.	35	12	131,550	63 000	
54. Snyder,	10	123	60	5,757	1 s. 4 s. w. 5 w.	208	41	572,500	747,500	50,000
55. Somerset,	25	127	215	51,089	13 s. 1 s. w. 11 w.	464	45	2 677,881	4,947,548	29,757
56. Sullivan,	14	104	124	20,266	9 s. 5 w.	622	75	158,384	14,906 000	8,010
57. Susquehanna,	36	135	100	14,656	12 s. 3 s. w. 21 w.	856	73	781 289	14,036 018	296,886
58. Tioga,	45	117	443	80,313	36 s. 9 w.	1,427	162	1,150,908	31 624,276	164,339
59. Union,	5	135	98	33,009	4 s. 1 w.	156	35	1.521,953	2,001,612	95
60. Venango,	11	101	39	5 813	11 s.	115	8	242 155	42 155	
61. Warren,	34	150	549	147,728	28 s. 3 s. w. 3 w.	1,153	100	9,085,972	36,656,984	1,102,469
62. Washington,	10	65	17	937	7 s. 3 s. w.	157	9	....	. . .	1,000
63. Wayne,	24	141	110	21,487	3 s. 3 s. w. 18 w.	523	43	101,289	7,632,681	22,000

Continued.

Ash—feet.	Chestnut—feet.	Walnut—feet.	Oak—feet.	Other lumber—feet.	Shingles—thousand.	Lath—thousand.	Staves—thousand.	Pickets, B. H., &c.,—thousand.	Value of product.	Number.
27,000	160,000	. . . .	463,112	201,638	4,989,200	5,580,000	108,500	3,000,000	$420,771	33
. . .	1,400	200	2,014 600	2,000	10,000	15,000	. . . .	. . . . .	8,350	34
38,459	10,510	. .	222,500	1,230.875	120 000	2,420,000	. . .	1,000	101,000	35
22,000	55 300	71,950	563,000	142 500	52 000	107,360	. . .	11,721	57 822	36
5,000	5,000	20,000	302,000	106,500	. . .	. . .	. . .	. . . . .	6,772	37
		2,000	30,000		. . . .		. . .	. .	300	38
7.502	128,516	9,158	297,791	106,094	. . .	45,621	. .	5,000	10,383	39
121,000	160,000	. .	835,683	1,134,148	16,500	1,221,000	100,000	1,000	77,633	40
322,423	324 227	50,331	650,731	2 333,853	7,020,091	45,517,567	490,000	4,296,537	2,508,796	41
789,000	54,792	.	15,000	3.497,495	1,417,600	1,300,000	. . .	. . . . .	994,173	42
110,000	228,000		1 170 000	184,000	800,000	160.000	. . .	5,000	40,720	43
17,000	71,000	5,000	245,000	670,000		70,000	. . .	50,000	17,820	44
. . .	.	. .	52,000	25 000	. .	30,000	. .	5,000	55,000	45
			20.000		60,000	30.000	. . .		5,000	46
30,900	30 000	4,800	49,000	101,000		524,600	. .	39,900	57,500	47
27,000	502,000	2,000	2,485,060	15,000	1,281,000	1,247,400	160,000	108,000	81,300	48
125	204.815	34,550	811 230	1,099	672,000	154,216	1 370,000	55,850	32,100	49
. . . .	. .		419,784	3 227 515		100 030	. .	. . . .	243,000	50
. . .	.	50	500	200,500	250,000	1,000,000	. . .	. . .	38 000	51
356,467	26,000	. .	30,723	580,644	1,902,000	1,618,000	. . .	. . . . .	108,695	52
1,500	36,200	3,000	41,063	31,000	59,143	113,064	80,140	13,056	5,303	53
1,001,000	56,000	21,000	105,000	33,000	574,200	425,000	450,000	62,100	22,316	54
35 437	69,608	18,926	1,869,593	2,616,370	4 119,700	705,000	35,000	55,000	147,522	55
58,687	22 000	.	200,000	446 027	47,000	170,000	. . .	25,000	137,174	56
268,331	104,000	40,000	160,581	1,211,830	1,925 000	3,112,000	. . .	1,500	109,655	57
483 319	113,088	.	247,569	2,095,603	1,787,000	6,035,471	. . . .	3,000	336,063	58
5,000	29,679	26,996	547,646	114,772	372,777	1,520,242	. . .	150,000	139,325	59
		. .	1,023,260	132,121	500,000		600,000	. . . . .	32,297	60
600,139	309,000	. .	1,107,006	2,752,048	10,950,000	5 390,000	627,000	. . . .	502,395	61
.	168	6,000	744,000	.	.	105,324	. . .	. . . .	8,650	62
138,227	18,614	. . .	25,726	3,406,299	25,000	1,209,000	. . . . .	. . . . .	126,216	63

Saw-Mills—

COUNTY.	Number of mills.	Number of days in operation.	Number of persons employed	Amount paid in wages.	Power—steam or water.	Horse-power.	Number of saws.	White pine—feet.	Hemlock—feet.	Cherry—feet.
64. Westmoreland,	11	100	42	$5,648	8 S. 1 S. W. 2 W.	216	12	30,000	25,000	. . . . .
65. Wyoming, .	22	112	122	21,618	12 S. 1 S. W. 9 W.	555	55	1,031,300	6,921,690	125,000
66. York, ...	14	106	29	3,907	1 S. 13 W.	166	33	197,000	321,500	. .
Totals, 1885, . .	923	133	11,138	$2,590,520	552 S. 61 S. W. 310 W.	29,544	3,631	259,747,137	596,867,679	16,771,656
Totals, 1884, . .	704	157	8,036	2,332,755	394 S. 34 S. W. 218 W.	22,140	3,055	249,613,025	409,257,410	9,997,533
Increase, . .	219		3,102	$257,765	158 S. 34 S. W. 92 W.	7,404	576	10,134,112	187,610,269	6,744,123
Decrease, . . .	. . .	24	. . . .	. . . .	. . .	. . .	. .	. . .	. . .	. . . .

Continued.

Ash—feet.	Chestnut—feet.	Walnut—feet.	Oak—feet.	Other lumber—feet.	Shingles—thousand.	Lath—thousand.	Staves—thousand.	Pickets, B. H., &c.,—thousand.	Value of product.	Number.
14,500	76 350	31,500	1,656,150	75,300	. .	30,000	10,000	2,000	$25,601	64
153,750	335,700	300	409,000	280,283	665,000	1,540,000	1,200	33,000	95,279	65
.	201,556	1,572	268,825	102,751	453,465	136 770		100,771	22,116	66
6,456,146	4 896,768	608,910	41,503,804	47,860,475	85,342,365	143,581,043	9,987,525	12,481,535	$11,949,122	
5,405,040	4,365,642	837,045	37,735,295	44,544,958	120,692,813	121,226,575	6,829 000	8,851,258	*	
1,051,106	531,126		3,767,509	3,315,517		22,354,468	3 158,525	3 630,277		
. . . . .	. . . .	228,135	. .	. . . .	35,350,448					

*Not stated.

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employé about $233, or an average of about $4 50 per week.

Hubs, Spokes, Handles, &c.

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Berks,	2	283	29	$10,695	$47,000
Chester,	2	290	178	78,870	224,500
Columbia,	1	170	3	550	2,500
Crawford,	2	100	10	1,700	7,800
Cumberland,	1	293	52	15,035	53,508
Dauphin,	1	175	21	3,800	14,000
Erie,	6	250	70	18,505	64,437
Fayette,	1	140	2	364	2,500
Franklin,	1	150	2	300	789
Lancaster,	3	275	38	13,300	62,000
Lehigh,	1	280	4	1,100	5,000
Mercer,	1	40	3	120	800
Philadelphia,	3	296	68	27,578	69,768
Pike,	1	200	3	900	3,000
Somerset,	1	100	4	400	1,500
Venango,	1	225	6	2,000	5,000
Warren,	2	300	16	5,875	19,500
Westmoreland,	1	300	3	1,872	5,720
Totals, 1885,	31	225	512	$182,964	$589,322
Totals, 1884,	19	255	408	163,879	467,237
Increase,	12	. . .	104	$19,065	$122,085
Decrease,	. . .	30			

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employé about $358, or an average of about $6 88 per week.

Musical Instruments.

Erie,	3	283	96	$49,580	$144,049
Northampton,	1	300	5	2,350	7,176
Northumberland,	1	300	10	2,447	7,335
Philadelphia,	5	275	161	84,873	218,620
York,	1	300	44	16,483	55,330
Totals, 1885,	11	291	316	$155,733	$432,510
Totals, 1884,	13	300	323	124,768	463,364
Increase,	. .	. . . .	. . . .	$30,965	
Decrease,	2	9	7	. . . .	$30,854

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employé about $492, or an average of about $9 46 per week.

Shingle Mills.

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Blair,	1	160	6	$1,533	$4,405
Bradford,	1	150	3	450	2,200
Clarion,	1	90	6	864	320
Centre,	2	120	8	2,400	13,000
Clinton,	3	168	24	6,657	34,969
Crawford,	2	173	16	3,454	10,500
Erie,	1	26	4	180	700
Indiana,	1	150	20	3,000	10,000
Lycoming,	3	160	51	14,343	67,000
McKean,	1	50	3	150	550
Potter,	3	140	8	642	5,225
Warren,	11	130	64	13,028	58,731
Totals,	20	126	213	$46,701	$207,600

NOTE.—This industry was included among the saw-mills in 1884. The average annual wage fund, if divided share and share alike, would give to each employé about $224, or an average of about $4 69 per week.

Staves, Shooks, Headings, &c.

Centre,	1	200	1	$100	$1,000
Clarion,	1	200	4	1,200	1,800
Clearfield,	1	250	10	3,600	8,000
Crawford,	2	150	14	2,600	9,700
Forest,	1	50	15	1,100	2,100
Mercer,	4	200	99	29,100	108,100
Perry,	1	120	14	2,000	5,100
Somerset,	1	260	30	10,049	17,000
Warren,	1	185	14	3,500	16,500
Totals, 1885,	13	180	201	$53,249	$169,300
Totals, 1884,	16	222	222	63,865	189,595
Decrease,	3	42	21	$10,616	$20,295

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employé about $265, or an average of about $5 25 per week.

Wooden-Ware.

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Erie,	2	300	59	$18,200	$69,500
Lancaster,	1	300	2	600	2,000
Lycoming,	1	100	7	800	1,550
Philadelphia,	7	299	163	75,108	281,000
Warren,	1	234	41	11,850	33,000
Totals,	12	250	272	$106,558	$387,050

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employé about $391, or an average of about $7 51 per week.

TABLE *showing the rate of wages paid, if the annual wage fund were divided share and share alike, to each employé, the number to whom wages are paid, and the average number of days employed during the year ending December 31, 1885, compiled from the reports of employers made to this Bureau.*

INDUSTRIES.	Number of employés.	Weekly wages.	Average number of days employed during the year.
Agricultural implements,	1,169	$9 00	250
Barrels and casks,	387	7 57	220
Boat builders,	90	4 77	230
Boxes,	961	5 54	260
Cars,	18	6 20	300
Carriages, &c.,	1,381	8 11	290
Coffins and caskets,	408	8 98	294
Furniture,	3,382	8 54	265
Hubs, spokes, handles, &c.,	512	6 88	225
Musical instruments,	316	9 46	291
Planing-mills,	5,127	7 25	260
Saw-mills,	11,138	4 50	133
Shingle-mills,	213	4 69	126
Staves, shooks, headings, &c.,	201	5 25	180
Wooden-ware,	272	7 51	250
Total number of employés,	25,575		

PAPER AND ITS PRODUCTS.

Printing and Publishing.

County.	Daily newspapers.	Circulation.	Weekly newspapers.	Circulation.	Monthly publications.	Circulation.	Other printing establishments.	Binderies.	Persons employed.	Days employed.	Wages paid.
Adams,			2	4,200					12	300	$3,008
Allegheny,	6	130,800	10	83,590	4	4 150			755		502,298
Armstrong,			2	1,900					9	310	2,250
Beaver,			1	950					4	310	1 700
Bedford,			1	2,300					5	310	2,000
Berks,	4	17,600	5	21,900				1	323		79,256
Blair,	2	5,000	4	4,500					76	310	25,483
Bradford,			2	6 148					20	310	6,933
Bucks,			2	7,750					25	310	12,038
Butler,			3	5,276					15	310	4,990
Cambria,	1	1,400	3	4,194					26	310	10,163
Cameron,			3	1,800					8	310	4,314
Carbon,	1	750	2	2 400					12	310	3,186
Centre,			4	7,210					30	310	10,224
Chester,	4	10 000	5	20,775					81	310	39,547
Clarion,			3	5,687					11	310	4,415
Clearfield,			3	3 948					13	310	6,508
Clinton,	2	1,120	2	2,300					27	310	8,504
Columbia,			3	4,800					15	310	3,980
Crawford,	2	3,260	3	9,500	1	50,000			96	310	38 500
Cumberland,	1	1,000	8	23 700					100	310	19,632
Dauphin,	3	12,100	5	11,450				3	151	310	72,369
Delaware,	2	2,600	5	10,848				1	63	310	29,616
Elk,			2	1 200					10	310	3,200
Erie,	2	4,660	7	15,880	1	2,500		1	168	310	59,114
Fayette,			4	7,900					30	310	11,608
Forest,			2	1,475					4	310	1,200
Franklin,	2	2 000	4	9,500					50	310	9,427
Fulton,			2	1 550					6	310	880
Greene,			4	8 500					26	300	6,925
Huntingdon,			4	6 600					22	310	5 513
Indiana,			4	5,800					14	310	4 050
Jefferson,			3	5,500					12	310	2,974
Juniata,			4	3,320					13	310	2,275
Lackawanna,	1	8.000	5	11,500					106	310	29,232
Lancaster,	4	10,700	9	27,200	1	6,200	1	2	239	310	95,572
Lawrence,	1	1,200	4	10,150					32	310	11,700
Lebanon,	2	2 500	5	9,800					49	310	10,942
Lehigh,	2	4,100	6	26,000					74	310	27,711
Luzerne,	6	11,300	7	12,400					141	310	51,048
Lycoming,	2	5,100	4	16 850				2	78	310	35,778
McKean,	1	5 000	4	6,585					43	310	26,258
Mercer,			5	6 500					26	310	7,840
Mifflin,			3	3 900					10	310	2,252
Monroe,			3	4,500					15	310	2 784
Montgomery,	2	2,700	5	16 600					47	310	16,260
Montour,	2	800	2	1,400					13	310	2,300
Northampton,	4	10.348	8	16 630	1	4,850		1	171	310	52,171
Northumberland,	1	1,000	6	9,907					40	310	12 924
Perry,			5	5,545					16	310	3,704
Philadelphia,	10	248,400	19	575 235	5	33,000	15	8	2,852		1,716 946
Pike,			1	575					3	310	700
Potter,			3	2,550					8	310	2,692
Schuylkill,	2	6,600	7	16,100				2	64	310	28 392
Snyder,			2	1,600					5	310	900
Somerset,			3	6,776					22	310	5,150
Sullivan,			1	800					2	300	200
Susquehanna,			2	7,516					10	310	6,400

Printing and Publishing—*Continued.*

COUNTY.	Daily newspapers.	Circulation.	Weekly newspapers.	Circulation	Monthly publications.	Circulation.	Other printing establishments.	Binderies.	Persons employed.	Days employed	Wages paid.
Tioga,			2	4,300					13	310	6,136
Union,			3	3,350					12	310	2,500
Venango,	3	5,100	4	6,850					82	310	43,484
Warren,			3	5,700					19	310	7,076
Washington,	1	1,300	2	3,000				1	25	310	6,660
Wayne,			3	6,144					22	310	6,565
Westmoreland,	1	1,800	4	10,925				1	40	310	13,300
Wyoming,			3	6,800					10	310	3,005
York,	3	8,200	6	11,400					99	310	26,875
Total,	80	526,438	270	1,169,439	13	100,700	16	23	6,675	310	3,262,932

NOTE.—There was considerable hesitation upon the part of many publishers to make any report, and others failed to do so at all, which accounts for the showing as exhibited in the above table. Wherever there are semi or tri-weeklies, as is the case in Huntingdon, Schuylkill, and Somerset counties, they are included among the weeklies. No attempt is made at an average of the days employed in Allegheny, Berks, and Philadelphia, as several dailies in those counties are published every day in the year. In the rest of the State the average is three hundred and ten days. If the annual wage fund were divided share and share alike, each employee would receive on an average about $487, or an average of about $9 36 per week.

Printing, Wall and Writing Papers, and Binders' Boards.

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Allegheny,	1	280	72	$35,000	$150,000
Beaver,	1	250	25	11,000	50,000
Berks,	1	300	23	5,000	25,000
Blair,	1	280	81	33,000	164,000
Bucks,	2	266	120	43,394	304,485
Chester,	17	275	238	93,115	499,901
Clinton,	1	280	92	39,000	182,400
Columbia,	1	200	38	11,317	54,234
Cumberland,	4	300	181	59,903	303,547
Delaware,	4	296	89	31,016	209,366
Erie,	1	293	110	53,000	400,000
Franklin,	2	274	41	8,704	45,220
Indiana,	1	67	12	1,500	4,050
Lancaster,	3	264	26	12,120	86,313
Luzerne,	2	281	32	13,326	48,216
Montgomery,	5	282	186	86,522	550,878
Northampton,	1	205	5	1,558	6,289
Philadelphia,	11	270	1,082	407,643	2,247,300
Westmoreland,	2	200	37	9,458	66,503
York,	2	300	160	64,000	535,000
Totals, 1885,	63	272	2,650	$1,019,576	$5,932,702
Totals, 1884,	62	272	2,481	936,900	5,321,163
Increase,	1	..	169	$82,676	$611,539

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employé about $362, or an average of about $6 96 per week.

Boxes, Bags, and Envelopes.

Allegheny,	3	308	95	$18,870	$64,524
Berks,	3	275	28	3,700	12,800
Dauphin,	2	287	17	2,720	27,483
Lancaster,	1	288	5	816	10,000
Philadelphia,	22	303	1,133	271,643	849,132
Totals, 1885,	31	292	1,278	$297,749	$963,939

NOTE.—The above industry was but imperfectly reported last year, and no comparison is instituted. The average annual wage fund, if divided share and share alike, would give to each employé about $233, or an average of about $4 48 per week.

TABLE *showing the rate of wages paid, if the annual wage fund were divided share and share alike, to each employé, the number to whom wages are paid, and the average number of days employed during the year ending December 31, 1885, compiled from the reports of employers made to this Bureau.*

INDUSTRIES.	Number of employés.	Weekly wages.	Average number of days employed during the year.
Printing and publishing,	6,675	$9 36	310
Printing, wall and writing papers, and binders' boards,	2,650	6 96	272
Boxes, bags, and envelopes,	1,278	4 48	292
Total number of employés,	10,605		

LEATHER AND ITS PRODUCTS.

Morocco Manufacturers.

County.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Berks,	1	300	43	$18,702	$150,000
Delaware,	1	80	12	2,000	7,000
Philadelphia,	35	300	2,368	1,248,493	6,110,788
Totals, 1885,	37	300	2,423	$1,269,195	$6,267,788
Totals, 1884,	36	300	2,002	1,032,074	4,950,596
Increase,	1		421	237,121	$1,317,192

Note.—The average annual wage fund, if divided share and share alike, would give to each employé about $523, or about $10 05 per week.

Boots and Shoes.

Allegheny,	2	267	60	$23,678	$89,750
Bradford,	2	260	56	21,925	110,000
Bucks,	2	270	51	12,964	43,060
Cumberland,	1	275	80	26,000	90,000
Dauphin,	1	280	80	22,000	75,000
Erie,	1	258	35	9,000	50,000
Lehigh,	4	283	273	63,532	284,640
Lycoming,	1	250	50	16,000	60,000
Mifflin,	1	255	4	876	4,381
Northumberland,	1	103	42	3,915	15,498
Philadelphia,	40	280	3,563	1,451,188	4,781,148
Schuylkill,	4	287	163	44,879	192,269
Wayne,	1	275	50	19,428	80,062
York,	1	230	40	17,000	50,000
Totals, 1885,	62	280	4,547	$1,732,385	$5,925,808
Totals, 1884,	67	287	4,725	1,925,309	5,343,134
Increase,					$582,674
Decrease,	5	7	178	$192,924	

Note.—The average annual wage fund, if divided share and share alike, would give to each employé about $389, or an average of about $7 48 per week.

Harness, Trunks, Etc.

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Allegheny,	2	304	17	$8,384	$28,201
Berks,	5	295	12	3,060	11,000
Bradford,	2	300	3	720	3,464
Clinton,	1	200	3	852	3,500
Delaware,	1	294	2	936	3,664
Lancaster,	4	300	28	9,493	35,053
Philadelphia,	13	300	140	68,820	275,821
Totals, 1885,	28	298	205	$92,265	$360,703
Totals, 1884,	15	292	120	38,522	148,146
Increase,	13	6	85	$53,743	$132,557

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employé about $450, or about $8 65 per week.

Tanneries.

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.	Number of tons of bark used.
Adams,	5	290	13	$2,210	$30,100	495
Allegheny,	14	300	477	228,034	1,826,302	36,695
Armstrong,	2	300	16	9,000	34,500	520
Bedford,	10	292	129	48,178	617,550	13,215
Berks,	16	290	69	23,936	192,800	2,525
Blair,	4	290	40	16,025	286,000	4,130
Bradford,	6	300	123	51,375	660,000	14,400
Bucks,	6	290	16	4,085	17,250	549
Butler,	1	200	1	400	2,000	75
Cambria,	5	294	42	13,926	240,473	5,160
Cameron,	2	310	150	54,627	595,000	9,000
Carbon,	2	200	12	1,600	13,500	650
Centre,	5	300	56	25,700	158,184	6.870
Chester,	3	313	10	3,500	33,237	425
Clarion,	2	156	3	118	666	18
Clearfield,	1	300	35	17,341	150,000	7,130
Clinton,	4	280	127	54,789	689,500	20,456
Columbia,	4	200	11	2,400	17,900	435

Tanneries—*Continued.*

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.	Number of tons of bark used.
Crawford,	5	310	55	19,723	175,208	2,506
Cumberland,	7	300	25	7,600	83,500	2,070
Erie,	7	300	65	28,714	299 092	6,550
Fayette,	2	250	6	1,450	6,500	250
Forest,	1	300	60	25,260	200,000	*
Franklin,	6	250	18	4,095	21,550	870
Fulton,	3	308	22	6,300	119,200	2 545
Greene,	1	300	1	300	2,000	30
Huntingdon,	7	287	105	34,887	507,230	11,310
Indiana,	4	300	4	1,150	9,400	305
Jefferson,	3	270	9	1,875	9 200	205
Juniata,	6	300	13	1,900	22,620	555
Lackawanna,	1	312	30	11,201	186,300	4,350
Lancaster,	13	290	93	31,187	247,050	4 325
Lawrence,	1	200	3	400	3,000	425
Lebanon,	5	280	20	5,020	47,787	880
Lehigh,	9	300	69	24,848	317,400	7,205
Luzerne,	5	290	43	16,815	138,000	3,950
Lycoming,	9	302	391	169,940	2,280,100	52 340
McKean,	2	286	151	58,789	625,000	17 300
Mifflin,	3	310	30	11,023	139,800	3,550
Monroe,	4	305	136	40,500	645,786	10,300
Montgomery,	5	280	17	6,200	65,600	862
Montour,	1	150	1	150	2,500	15
Northampton,	1	300	7	2,460	31,500	820
Northumberland,	4	300	70	23,836	353,500	9,040
Perry,	9	290	73	25 157	455,300	8,035
Philadelphia,	4	300	73	45,584	537,799	1,201
Potter,	6	300	354	151,940	1,503,500	50,420
Schuylkill,	6	300	23	8,173	86,450	1,850
Snyder,	3	300	7	700	6,800	290
Somerset,	7	290	16	2,400	18 300	363
Sullivan,	3	310	162	61 250	705,000	21,150
Susquehanna,	9	295	245	84,636	770,176	22,000
Tioga,	12	307	527	216,397	2,968,200	81,840
Union,	3	298	5	1,435	14,500	300
Warren,	9	304	542	223,363	2,578,960	47,272
Wayne,	4	293	117	38,925	482,000	13,700
Westmoreland,	5	300	10	2,500	20,500	450
Wyoming,	3	304	110	42,700	650,000	12,000
York,	13	297	58	19,300	197,600	4,205
Totals, 1885,	303	285	5,099	$2,017,327	$23,098,870	530,382
Totals, 1884,	393	253	6,121	2,416,327	22,185,817	709,575
Increase,		32			$913,053	
Decrease,	90		1,022	$399,000		179,193

* Not stated.

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employé about $359, or an average of about $7 59 per week.

TABLE *showing the rate of wages paid, if the annual wage fund were divided share and share alike, to each employé, the number to whom wages are paid, and the average number of days employed during the year ending December 31, 1885, compiled from the reports of employers made to this Bureau.*

INDUSTRIES.	Number of employés.	Weekly wages.	Average number of days employed during the year.
Tanneries,	5,099	$7 59	285
Morocco,	2,423	10 05	300
Boots and shoes,	4,547	7 48	280
Harness, trunks, &c.,	205	8 65	298
Total number of employés,	12,274		

CLAY AND ITS PRODUCTS.

Crucibles.

County.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Allegheny,	2	306	122	$58,030	$149,583
Philadelphia,	2	300	31	19,067	130,000
Totals, 1885,	2	303	153	$77,097	$279,583
Totals, 1884,	4	232	70	60,330	357,000
Increase,		71	83	$16,767	
Decrease,	2				$77,417

Note.—The average annual wage fund, if divided share and share alike, would give to each employé about $503, or an average of about $9 67 per week.

Earthen and Stoneware.

Allegheny,	1	220	5	$2,337	$6,199
Armstrong,	1	250	4	1,000	3,000
Beaver,	5	243	246	75,752	145,103
Berks,	3	300	5	1,350	4,200
Chester,	3	225	239	42,696	96,623
Clearfield,	1	250	3	600	1,500
Dauphin,	2	300	12	4,000	10,580
Erie,	1	306	6	5,200	27,000
Greene,	2	250	56	15,460	29,400
Jefferson,	1	240	2	3,000	800
Lancaster,	2	290	6	1,890	4,280
Lycoming,	1	300	3	1,000	6,000
Philadelphia,	6	275	198	67,725	136,363
Schuylkill,	1	292	2	120	800
Venango,	1	100	2	200	600
York,	1	250	3	850	5,000
Totals, 1885,	32	253	792	$223,180	$477,448
Totals, 1884,	36	254	747	294,858	616,502
Increase,			45		
Decrease,	4	1		$71,678	$139,054

Note.—The average annual wage fund, if divided share and share alike, would give to each employé about $281, or an average of about $5 40 per week.

Fire-Brick.

COUNTY.	Number of establishments.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Allegheny,	2	300	176	$55,609	$220,194
Armstrong,	1	175	32	6,747	29,186
Beaver,	1	293	39	13,807	24,031
Berks,	2	243	69	18,707	18,574
Cambria,	1	300	97	57,670	91,230
Chester,	2	276	17	3,509	14,216
Clarion,	1	60	9	540	1,760
Clearfield,	3	270	220	88,247	145,593
Clinton,	1	270	45	12,000	20,000
Dauphin,	1	125	15	4,947	13,000
Delaware,	1	250	40	15,000	25,000
Fayette,	1	244	21	9,295	17,043
Indiana,	1	175	33	5,985	6,500
Lehigh,	3	248	82	16,208	60,045
Luzerne,	1	275	28	10,000	20,000
Philadelphia,	4	300	122	57,804	159,673
Somerset,	1	300	180	56,690	100,000
Westmoreland,	3	300	135	34,850	63,700
Totals, 1885,	30	245	1,360	$467,615	$1,029,745
Totals, 1884,	31	259	1,724	544,465	944,133
Increase,					$85,612
Decrease,	1	14	364	$76,850	

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employé about $343, or an average of about $6 59 per week.

Terra-Cotta, &c.

Berks,	1	300	16	$8,000	$25,000
Philadelphia,	3	300	59	30,600	247,060
Totals, 1885,	4	300	75	$38,600	$272,060
Totals, 1884,	10	242	144	65,657	260,700
Increase,		58			$11,360
Decrease,	6		69	$27,057	

NOTE.—To some extent the terra-cotta industry was tabulated with fire-brick, &c., last year. The average annual wage fund, if divided share and share alike, would give to each employé about $514, or an average of about $9 88 per week.

TABLE *showing the rate of wages paid if the annual wage fund was divided share and share alike to each employé, the number to whom wages are paid, and the average number of days employed during the year ending December 31, 1885, compiled from the reports of employers made to this Bureau.*

Industries.	Number of employés.	Weekly wages.	Average number of days employed during the year.
Crucibles,	153	$9 67	303
Earthen and stoneware,	792	5 40	253
Fire-brick, &c.,	245	6 59	245
Terra-cotta, &c.,	75	9 88	300
Total number of employés.	1,265		

BREWERIES.

TABLE *showing the number of days in operation, persons employed, wages paid, quantity of material consumed, barrels of liquor brewed, and value thereof, compiled from reports made to the Bureau by three hundred operators, for the year ending December 31, 1885.*

COUNTIES.	Number of breweries.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	RAW MATERIAL USED.				Number of barrels of thirty-one gallons U. S. standard, of beer, ale, and porter.	Value of product.
					Malt—bushels.	Barley and rice—pounds.	Hops—pounds.	Cerealine—pounds.		
Allegheny,	22	275	445	$219,336	478,349	1,515,061	653,165	122,235	238,434	$1,907,472
Beaver,	4	290	12	7,954	8,119		5,562		3,535	29,076
Berks,	5	313	70	35,836	90,923	17,500	63,866	13,513	45,440	233,225
Blair,	5	306	16	7,670	20,304		24,360		53,085	23,265
Bradford,	1	313	2	525	1,525		1,286		610	4,880
Bucks,	1	200	1	200	650		480		300	1,400
Cambria,	10	260	30	15,325	29,046	8,192	19,110	3,003	10,303	89,318
Cameron,	1	90	3	450	650		500		300	2,400
Carbon,	2	307	7	3,468	8,725		6,740		3,634	29,4·9
Centre,	1	313	2	500	1,040		124		416	3,744
Clarion,	1	313	4	1,800	1,600		650		490	4,000
Clearfield,	3	125	3	800	1,415		789		576	4,608
Clinton,	2	250	3	1,450	2,800		1,460		775	6,200
Crawford,	5	290	24	12,507	19,210	33,440	13,000	27,000	7,790	51,720
Dauphin,	6	300	27	13,998	32,835		21,550		14,402	113,889
Elk,	3	275	6	1,480	5,444		2,865		2,184	17,472
Erie,	7	300	62	34,436	82,534	46,568	51,457	5,372	36,344	162,381
Franklin,	3	50	2	300	1,986		1,489		765	5,705
Indiana,	1	82	5	1,825	2,502		1,845	272	982	7,856
Jefferson,	3	307	4	1,700	4,474		2,637		1,827	14,472
Lackawanna,	3	307	43	33,740	79,434		51,978	9,240	41,652	121,262
Lancaster,	7	285	38	17,456	36,739	40,000	19,494		18,942	123,809
Lawrence,	3	200	10	3,735	7,739		4,730	204	3,108	17,916

Breweries—*Continued.*

COUNTIES.	Number of breweries.	Number of days in operation.	Number of persons employed.	Amount paid in wages.	RAW MATERIAL USED.				Number of barrels of thirty-one gallons, U. S. standard, of beer, ale, and porter.	Value of product.
					Malt—bushels.	Barley and rice—pounds.	Hops—pounds.	Cerealine—pounds.		
Lebanon,	1	239	13	$10,000	15,084	147,285	11,154	.	8,695	$69,560
Lehigh,	6	300	26	11,850	30,086	42,475	20,639	4,080	15,695	101,493
Luzerne,	5	313	80	50,148	117,539	. . . .	82,431	663	50,588	311,327
Lycoming,	3	300	12	7,980	17,517	. . . . .	10,515	. .	7,625	60,570
McKean,	1	150	2	300	1,300	. . . . .	800	. . . . .	500	4,000
Mifflin,	1	150	1	200	310	. . . . .	210	. . . . .	130	800
Monroe,	1	312	2	400	187	. . . . .	150	. . . . .	75	675
Montgomery,	2	311	19	9,926	18,181	. . . . .	14,004	. . .	8,758	47,656
Montour,	2	110	7	2,570	4,767	. .	3,656	90	2,343	13,101
Northampton,	5	295	78	32,700	57,757	1,220	33,278	123	25,323	168,720
Northumberland,	2	307	13	6,312	12,813		7,848		6,177	41,080
Philadelphia,	89	280	1,590	1,086,304	2,509,344	13,123,846	2,129,030	766,546	1,266,812	8,867,684
Potter,	1	100	4	1,500	1,800	.	900	. . . . .	900	7,200
Schuylkill,	6	300	92	49,630	80,913	. . . . .	87,831	. . . .	46,924	327,665
Sullivan,	1	52	1	50	381	. . . . .	309	. .	182	1,360
Tioga,	3	313	3	540	685	. . . . .	420	. . . . .	266	1,975
Venango,	1	300	3	1,500	2,200	. . . . .	2,000	. . . .	1,000	7,000
Warren,	1	61	6	300	5,656	. . . . .	3,500	. . . .	2,440	17,080
Washington,	2	30	3	508	842	. . . . .	519	. .	409	4,042
Wayne,	2	307	14	7,580	19,127	. . . . .	10,450	800	8,162	53,392
Westmoreland,	2	125	8	2,140	8,900	.	5,300	. .	4,300	21,000
York,	3	220	9	3,571	7,688	47,600	5,601	.	4,673	31,571
Total, 1885,	239	238	2,805	$1,702,500	3,851,220	14,023,187	3,379,677	953,141	1,947,871	$13,134,450
Total, 1884,	186	232	2,603	1,631,812	2,692,264	7,470,250	1,779,249	Not stated.	1,738,298	12,168,086
Increase,	53	6	202	$70,688	1,158,956	6,552,937	1,600,428	. .	209,573	$966,364

The report of materials consumed in 1884 was unreliable, the brewers in many instances having reported a less quantity of rice and barley than was actually consumed.

The annual wage fund, if divided share and share alike, would give each employé about $607 per annum, or about $11 67 per week. In many instances the employés are paid partly in board, partly in cash. No estimate of the money value of the boarding has been given.

Malsters received from	$1 75	to	$2 25	per day.
Brewers " "	2 00	to	3 00	"
Millers " "	2 00	to	2 50	"
Coopers " "	2 00	to	2 25	"
Bottlers " "	1 00	to	1 33	"
Collectors " "	3 00	to	5 00	"
Drivers " "	1 75	to	2 00	"
Stable men " "	1 25	to	1 67	"
Managers " "	7 00	to	10 00	"

DISTILLED LIQUORS.

TABLE *showing the number of days in operation, persons employed, wages paid, bushels of grain consumed, barrels of liquor made, and value of product, compiled from reports made to the Bureau by fifty-six operators, for the year ending December 31, 1885.*

COUNTIES.	No. of distilleries.	No. of days in operation.	No. of persons employed.	Amount paid in wages.	No. of bushels of grain used.	No. of barrels of liquor made.	Kind of liquor made.	Value of product, less taxes.
Allegheny	4	250	49	$15,848	146,546	13,227	Whisky,	$229,500
Armstrong	1	259	57	37,450	89,000	9,675	"	215,000
Bradford	2	225	7	1 325	5,270	472	"	9,440
Berks	3	140	9	1,948	65,012	3,497	"	71,120
Centre	2	83	2	210	365	80	"	3 200
Cumberland	1	10	2	20	176	9	"	100
Dauphin	3	200	9	3,700	11,820	1,089	"	20,521
Fayette	2	175	7	935	3,090	308	"	4,910
Franklin	4	133	8	1,109	5,996	561	"	11,975
Greene	1	79	4	370	1,512	117	"	3,000
Huntingdon	1	118	3	400	2,200	161	"	3,620
Indiana	1	117	3	818	1,190	116	"	2,320
Lancaster	2	250	3	600	6,710	523	"	11,500
Lebanon	1	153	1	109	1,674	138	"	2,760
Lehigh	2	15	3	30	Apples, 2,250	17	Apple brandy.	1,050
Lycoming	2	125	2	305	1,775	130	Whisky,	2,600
Montour	1	143	1	100	728	53	"	1.160
Philadelphia	2	180	11	4,775	21,662	2 068	"	31 360
Somerset	2	200	7	1,100	8,728	571	"	11,000
Union	1	112	2	225	2,321	145	"	2,900
Washington	1	74	2	74	1,210	85	"	1,700
Westmoreland	3	300	95	61,593	210,758	21,230	"	424,600
York	3	223	10	2,657	13,092	1,772	"	35,100
Total, 1885	45	153	297	$135,701	603,085	56 044	.....	$1,100,436
Total, 1884	47	169	245	105,448	351,771	58,544		1,170,880
Decrease	2	16				2 500		$70,444
Increase		..	52	$30,253	251,314			

The annual wage fund, if divided share and share alike, would give each employé about $456 per annum, or about $8 79 per week. In many instances, especially in the rural districts, board was given to the employés in addition to the wages paid in money.

Wages paid to distillers, from $4 to $8 per day. Average wages paid to millers, $2 25; malsters, $2 75; warehousemen, $2; all others, about $2 25. In small distilleries in the rural districts the wages were about $1 per day and board.

The value of the product does not include the Government tax, which is ninety cents per gallon in addition to value as stated in the table.

STREET PASSENGER RAILWAYS.

TABLE *showing the number of hours run, the number of employés, and the wages paid. Compiled from reports made to this Bureau by forty-four companies, for the year ending December 31, 1885.*

NAME OF COMPANY.	Number of companies.	Number of hours per day run.	Number of persons employed.	Amount paid in wages.	Employés.	Average daily wages.
Allentown,	1	14	11	$1,307	Superintendents,	$3 33
Allegheny and Pittsburgh,	10	18	647	461,703	Superintendents' assistants,	2 11
Altoona,	1	15	16	9,427	Stable foremen,	1 64
Chester,	1	16	21	13,013	Conductors,	1 65
Easton,	1	16	6	1,938	Drivers,	1 56
Erie,	1	15	20	11,864	Drivers, fare-box cars,	1 52
Harrisburg,	1	17	23	7,026	Hostlers,	1 35
Johnstown,	1	17	20	10,346	Feeders,	1 57
Lancaster,	2	14	11	3,211	Carhousemen,	1 50
Philadelphia,	18	19	3,533	1,974,467	Blacksmiths,	2 25
Pittston,	1	15	5	1,850	Teamsters,	1 30
Reading,	1	15	17	6,724	Harnessmakers,	2 00
Scranton,	1	15	33	17,000	Watchmen,	1 50
Stroudsburg,	1	17	6	2,100	Fare-box collectors,	2 24
Wilkes-Barre,	2	15	16	7,141	Conductors cable cars,	2 40
Williamsport,	1	15	13	6,261	Gripmen, cable cars,	2 40
					Printers,	2 00
Total, 1885,	44	16	4,398	$2,535,378	Carpenters,	2 25
Total, 1884,	45	17	4,207	2,366,211	All others,	1 75
Increase,			191	169,167		
Decrease,	1	1				

The annual wage fund, if divided share and share alike, would give each about $577 per annum, or about $11 per week for an average working day of sixteen hours.

The annual wage fund of the regular employés, not counting officers of the road, would average about $9 76 per week, if divided equally among all.

If the importance of location is taken into account, the average working time would be about eighteen and a half hours per day, Philadelphia and Pittsburgh having more lines and employés than all the other cities together.

The average wages paid in each city will be found in another table. For the amount of business done by the lines of railway, Philadelphia pays the highest wages and Harrisburg the lowest.

STREET RAILWAY LABOR.

TABLE *showing the number of employés, the kind of labor performed, the number of hours worked per day, and the average daily wages paid, compiled from reports made to this Bureau by forty-four street railway companies, for the year ending December 31, 1885.*

Location.	Lines of road.	Superintendent.			Assistant Superintendent.			Stable Foremen.			Conductors.			Drivers.			Drivers Fare Box Car.			Hostlers.		
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
		Hours employed.	Number employed.	Daily wages.	Hours employed.	Number employed.	Daily wages.	Hours employed.	Number employed.	Daily wages.	Hours employed.	Number employed.	Daily wages.	Hours employed.	Number employed.	Daily wages.	Hours employed.	Number employed.	Daily wages.	Hours employed.	Number employed.	Daily wages.
Allentown,	1	7	1	$0 95	3	1	$0 63	12	1	$1 42	14	1	$1 00	14	6	$1 16						
Allegheny and Pittsburgh,	1		1	$6 85				12	3	$2 08	14½	27	$1 85	14½	27	$1 70	14½	13	$1 85	12	24	$1 30
Allegheny and Pittsburgh,	1		1	3 50													17	18	1 90	12	7	1 35
Allegheny and Pittsburgh,	1		1	4 00	10	1	$2 30	10	3	1 75	16	32	2 00	16	32	1 75				14	12	2 29
Allegheny and Pittsburgh,	1	10	1	2 83				10	1	2 00	17	18	1 75	17	18	1 75				14	13	1 35
Allegheny and Pittsburgh,	1	15	1	3 00				15	1	2 15	14	10	2 00	14	10	1 80	15	6	2 25	10	12	1 35
Allegheny and Pittsburgh,	1	7	1	2 75	8	1	1 65				16	10	2 00	D.	& C.	same.				11	6	1 39
Allegheny and Pittsburgh,	1		1	2 50							16	19	2 00	16	17	1 75				14	13	1 35
Allegheny and Pittsburgh,	1	12	1	2 15				14	1	1 53							16	11	1 75	14	5	1 30
Allegheny and Pittsburgh,	1	16	1	2 00				16	1	1 50							15	6	1 80	13	3	1 30
Allegheny and Pittsburgh,	1	12	1	3 60				14	1	2 25	16	20	1 85	16	25	1 75	16	5	1 85	13	20	1 25
Totals, 1885,	10	7½	10	$3 41	9	2	$2 11	13	11	$1 90	15½	136	$1 90	15½	129	$1 75	15	59	$1 88	12½	114	$1 35
Altoona,	1	14	1	$2 84				12	1	$1 75							16	9	$1 60	14	2	$1 40
Chester,	1							12	1	$1 72							15	10	$1 50	12	5	$1 43
Easton,	1	16	1	$1 50				16	1	$1 34							16	3	$1 34	16	1	$1 00

Street Railway Labor—*Continued.*

LOCATION.	Lines of road.	SUPERINTENDENT.			ASSISTANT SUPERINTENDENT.			STABLE FOREMEN.			CONDUCTORS.			DRIVERS.			DRIVERS FARE BOX CAR.			HOSTLERS.		
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
		Hours employed.	Number employed.	Daily wages.	Hours employed.	Number employed.	Daily wages.	Hours employed.	Number employed.	Daily wages.	Hours employed.	Number employed.	Daily wages.	Hours employed.	Number employed.	Daily wages.	Hours employed.	Number employed.	Daily wages.	Hours employed.	Number employed.	Daily wages.
Erie,	1	13	1	$3 33				15	1	$1 83						..	15	14	$1 50	15	5	$1 30
Harrisburg,	1	17	1	$2 32										..			17	15	$1 50	14	7	$1 00
Johnstown,	1	12	1	$3 28			....	12	1	$1 85			.	..			14½	10	$1 50	13½	5	$1 40
Lancaster,	1		4	$1 66			....	15	1	$1 28	15	1	$2 00	15	1	$1 50						
Lancaster,	1														...		12	3	$1 00		.	
Totals, 1885,	2		4	$1 66				15	1	$1 28	15	1	$2 00	15	1	$1 50	12	3	$1 00			
*Philadelphia,	1	12	1	$3 50			..	14	1	$3 00	14	55	$2 12	14	55	$1 87				14	27	$1 42
Philadelphia,	1	10	1	4 10			..	10	2	2 07	16¾	76	2 09	16¾	80	2 00	10	7	$1 71	14½	46	1 43
Philadelphia,	1	..						13	1	2 75	17	50	1 75	17	50	1 60				16	36	1 28
Philadelphia, (consolidated,)	3	12	1	3 70	14	2	$2 86	14	5	2 00	16½	130	2 00	16½	130	2 00	16	6	2 00	15	95	1 60
Philadelphia,	1	16	1	1 66	.	.					15	6	1 33	12	3	65			. .	12	2	1 15
Philadelphia,	1	14	1	3 70	.			14	1	2 14	16	21	2 25	16	25	1 75		.	.	14	14	1 29
Philadelphia,	1	10	1	3 50				14	1	2 28	13	50	2 50	13	50	2 00			. .	13	25	1 57
Philadelphia,	1	12	3	3 65	12	1	2 14	12	3	2 00	14	100	2 00	14	100	2 00				12	45	1 43
Philadelphia,	1		1	3 29				13	1	2 85	12½	47	2 00	12½	47	1 75				13	32	1 35
Philadelphia, (consolidated,)	7		1	8 30				13	10	2 58	15¼	372	2 00	15¼	372	1 75	15¼	68	2 00	13	206	1 29
Totals, 1885,	18	11	11	$3 88	13	3	$2 62	13	25	$2 36	16	837	$2 10	16	912	$1 85	16	81	$2 00	14	528	$1 30
Pittston,	1	2	1	$0 66							12	1	$1 54	12	1	$1 35				12	1	$1 15
Reading,	1		1	$2 50							14	7	$1 33						.	13	6	$1 16

Scranton,	1	12	1	$2 50				16	1	$1 67	14	12	$1 54	14	12	$1 54				13	4	$1 33
Stroudsburg,	1	12	1	$1 10				12	1	$1 10	13	1	$1 00	17	1	$0 75				12	1	$0 75
Wilkes-Barre,	1	10	1	$1 50				15	1	$1 30	15	2	$1 30	15	2	$1 00						
Wilkes-Barre,	1							16	2	1 50	15	2	1 50	15	6	1 25						
	2	10	1	$1 50				15½	3	$1 40	15	4	$1 40	15	8	$1 13						
Williamsport,	1	10	1	$1 90	10	1	$1 90										13	7	$1 40	13	3	$1 40
Total lines of road,	44																					
Total regular employees,	4,221		42			9			52			1,054			1,078			214			682	

* In addition to the above for Philadelphia, there were employed on cable cars, 49 conductors, 15½ hours per day, at $2 40 per day; 49 gripmen, 15½ hours, $2 40 per day; 4 printers, 10 hours, $2 00 per day; 7 carpenters, 10 hours, $2 25 per day; 92 other employees, 12 hours, $1 50 per day.

Street Railway Labor—*Continued.*

LOCATION.	FEEDERS.			CARHOUSEMEN.			BLACKSMITHS.			TEAMSTERS.			HARNESS-MAKERS.			WATCHMEN.			FARE BOX COLLECTORS.			ALL OTHERS.		
	1 Hours employed.	2 Number employed.	3 Daily wages.	1 Hours employed.	2 Number employed.	3 Daily wages.	1 Hours employed.	2 Number employed.	3 Daily wages.	1 Hours employed.	2 Number employed.	3 Daily wages.	1 Hours employed.	2 Number employed.	3 Daily wages.	1 Hours employed.	2 Number employed.	3 Daily wages.	1 Hours employed.	2 Number employed.	3 Daily wages.	1 Hours employed.	2 Number employed.	3 Daily wages.
Allentown,										14	1	$1 16												
Allegheny and Pittsburgh,	12	3	$1 55	12	5	$1 71	10	6	$2 40	10	1	$1 30				12	2	$1 70				7	4	$2 50
Allegheny and Pittsburgh,	12	4	1 50				10	2	2 16	10	1	1 67				12	1	1 35	10	1	$2 00	10	10	2 00
Allegheny and Pittsburgh,	14	12	2 29	10	2	1 00	10	6	2 25				10	1	$1 66	12	3	1 67				10	19	2 00
Allegheny and Pittsburgh,	14	1	1 70	12	3	1 50	10	3	2 65	11	1	1 60				12	2	1 35				10	2	2 50
Allegheny and Pittsburgh,	12	1	1 50	12	2	1 50	10	3	2 28	10	1	1 50	10	1	2 25	12	2	1 50	9	1	2 00	10	6	1 50
Allegheny and Pittsburgh,	11	1	1 39				10	2	2 17							12	1	1 53				10	4	1 80
Allegheny and Pittsburgh,	14	2	1 35	10	1	1 00	10	4	2 46	10	2	1 37	10	1	1 67				10	2	1 45	10	11	2 00
Allegheny and Pittsburgh,	12	1	1 43				10	2	2 50							12	1	1 30	12	1	1 85	10	4	1 75
Allegheny and Pittsburgh,	14	1	1 50				10	2	1 75							12	1	1 50	12	1	1 75	10	3	1 50
Allegheny and Pittsburgh,	12	2	1 75				10	5	2 50							14	3	1 75				10	5	1 50
Totals, 1885,	13	28	$1 60	11	13	$1 62	10	35	$2 35	10	6	$1 50	10	3	$1 86	12	16	$1 53	11	6	$1 90	10	68	$1 80
Altoona,							10	1	$1 67							12	1	$1 50				10	1	$1 50
Chester,				12	1	$1 29	10	1	$2 00							12	1	$1 43				10	1	$1 50
Easton,																								
Erie,							10	1	$1 35													13	1	$1 50
Harrisburg,	12	1	$1 00																					
Johnstown,							12	2	$1 75										12	1				

Lancaster,																				12	1	$0 50			
Lancaster,																				12	1	$0 50			
Philadelphia,				12	3	$1 50	10	5	$2 50				10	1	$2 50	12	3	$1 60				8	5	$2 50
Philadelphia,				10	19	2 25	10	3	2 17	10	5	$1 50	10	2	1 91	10	14	1 29				10	31	2 39
Philadelphia,	10	2	$1 42	10	2	2 00	10	6	2 93	10	1	1 50	10	1	2 00	12	3	1 38				12	16	1 75
Philadelphia, (consolidated,)				10	20	2 00	10	17	2 70	10	2	1 75	10	3	2 10	12	6	2 00				10	97	2 50
Philadelphia,	12	1	1 15				10	1	1 43				10	1	1 15									
Philadelphia,	12	1	1 57	10	1	3 00							10	1	1 75	13	1	1 72						
Philadelphia,				12	2	1 57	10	5	2 28	10	1	2 00	10	1	2 00	12	2	1 57						
Philadelphia,	10	6	1 24	10	9	2 42	10	6	2 50				10	2	2 46	12	6	1 57						
Philadelphia,	10	1	2 00	11	11	1 83	10	5	2 67	10	4	1 40	10	1	2 00	12	5	1 50				10	14	1 65
Philadelphia, (consolidated,)	10	10	2 00	10	27	1 29	10	32	2 75	10	9	1 70	10	9	2 00	12	27	1 43	10	19	$2 58	10	250	1 85
Totals, 1885,	10	21	$1 57	10	94	$1 98	10	80	$2 45	10	23	$1 64	10	22	$2 00	12	67	$1 57	10	19	$2 58	10	413	$2 10
Pittston,																								
Reading,																						10	1	$2 00
Scranton,	13	1	$1 67	13	1	$1 35										12	1	$1 33						
Stroudsburg,										11	1	$1 10												
Wilkes-Barre,										10	1	$1 00												
Wilkes-Barre,										10	1	$1 00												
Williamsport,																						10	1	$0 84
Total regular employees,		51			109			120			33			25			87			27			638	

STEAM RAILWAY LABOR.

TABLE *showing the number of persons employed and the average monthly wages paid in the steam railway service, compiled from reports made to this Bureau by the several railroad corporations of the State, for the year ending December 31, 1885.*

OCCUPATIONS.	Number of employés.	Average monthly wages.	OCCUPATIONS.	Number of employés.	Average monthly wages.
Conducting Transportation.			Foremen, (laborers,)	407	$46
Clerks,	3,173	$55	Laborers,	1,925	33
Chief telegraph operators,	617	80	Foremen, (masons,)	35	82
Telegraph operators,	2,136	41	Masons,	226	62
Passenger and freight agents.	1,746	46	Foremen, (quarrymen,)	6	52
Depot-masters,	58	74	Quarrymen,	54	35
General dispatchers,	553	78	Blacksmiths,	98	47
Train-masters,	67	104	Blacksmiths' helpers,	43	39
Conductors, (passenger.)	793	76	Painters,	61	52
Conductors, (freight,)	2,101	64	Telegraph repairmen,	135	54
Brakemen, (passenger)	1,057	43	All others,	963	40
Brakemen, (freight,)	6,792	43	Total,	20,669	
Janitors,	236	31			
Watchmen,	989	37			
Baggage-masters,	734	48	*Motive Power.*		
Switch-tenders,	1,676	41	Master mechanics,	63	$126
Baggage-porters,	143	34	General foremen,	53	95
Policemen,	44	46	Foremen,	431	80
Gatemen,	241	37	Road foremen of engines,	29	92
Flagmen,	570	33	Clerks,	271	51
Cleaners,	150	19	Engine preparers,	309	51
Messengers,	282	18	Assistant preparers,	52	37
Weigh-masters,	591	47	Car inspectors,	1,481	43
Laborers,	2,978	36	Car cleaners,	500	31
Blacksmiths,	26	46	Riggers,	54	47
Blacksmiths' helpers,	23	33	Watchmen,	481	40
Warehousemen,	1,472	34	Machinists,	2,397	56
All others,	1,355	67	Machinists' helpers,	724	35
Total,	30,603		Machinists' apprentices,	280	21
			Blacksmiths,	1,038	55
Maintenance of Way.			Blacksmiths' helpers,	1,050	35
			Blacksmiths' apprentices,	327	21
Supervisors,	164	$75	Tinners,	275	53
Track foremen,	1,688	44	Tinners' helpers,	88	34
Trackmen,	12,705	30	Tinners' apprentices,	48	26
Switchmen,	131	41	Coppersmiths,	106	63
Conductors, (work trains,)	90	64	Carpenters,	3,028	46
Flagmen, (work trains,)	442	40	Carpenters' apprentices,	95	28
Brakemen, (work trains)	88	43	Laborers, (carpenter-shop,)	499	33
Pumpers,	107	40	Trimmers,	53	50
Master carpenters,	69	87	Painters,	619	49
Foremen, (carpenters,)	120	65	Painters' apprentices,	55	33
Carpenters,	1,112	51	Laborers, (paint-shop,)	115	33

Steam Railway Labor—*Continued.*

OCCUPATIONS.	Number of employés.	Average monthly wages.	OCCUPATIONS.	Number of employés.	Average monthly wages.
Motive Power—Continued.			Freight firemen, ...	2,076	$47
Oil distributors, ...	151	$38	Distributing enginemen, .	250	67
Coalmen, ...	386	36	Distributing firemen, . . .	391	50
Grinders, ...	4	50	Yard enginemen, ...	457	73
Laborers, ...	2,059	32	Yard firemen, ...	883	44
Engine cleaners, ...	802	34	All others, ...	933	47
Stationary enginemen, . .	215	43			
Stationary firemen, . . .	82	43	Total, ...	27,938	
Passenger enginemen, . .	1,179	84			
Passenger firemen, . .	1,145	48	Grand total, ...	79,210	
Freight enginemen, ...	2,404	78			

MANUFACTURES—MISCELLANEOUS.

Brushes and Brush Blocks.

COUNTY.	Number of establishments.	Average number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Allegheny,	2	300	14	$8,250	$24,800
Berks,	2	300	11	2,190	13,000
Delaware,	1	290	8	2,682	6,651
Lehigh,	1	250	4	1,000	3,000
McKean,	1	300	25	9,000	21,000
Northampton,	1	300	14	7,130	22,000
Philadelphia,	9	300	62	22,987	71,724
Venango,	1	290	22	3,961	15,000
Totals, 1885,	18	291	160	$57,200	$177,175
Totals, 1884,	20	274	699	122,801	476,561
Increase,		17			
Decrease,	2		539	$65,601	$299,386

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employé about $357, or an average of about $6 86 per week.

Cordage, Rope, Twine, &c.

Allegheny,	1	300	27	$10,000	$46,000
Beaver,	1	300	140	30,000	275,000
Berks	1	250	130	12,000	138,000
Lancaster,	1	225	1	70	850
Northampton,	1	90	20	2,834	24,000
Philadelphia,	9	300	471	158,460	1,754,060
York,	1	300	15	2,500	18,000
Totals, 1885,	15	252	804	$215,864	$2,255,910
Totals, 1884,	15	270	765	235,131	2,115,087
Increase,			39		$140,823
Decrease,		18		$19,267	

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employé about $268, or an average of about $5 15 per week.

MANUFACTURES—MISCELLANEOUS—Continued.

Cigar Manufacturers.

COUNTY.	Number of establishments.	Average number of days in operation.	Number of persons employed.	Amount paid in wages.	Value of product.
Adams,	9	285	246	$45,825	$134,173
Allegheny,	4	288	169	51,452	467,843
Berks,	15	280	447	131,415	461,297
Bucks,	1	300	2	700	1,450
Bradford,	1	300	1	300	1,000
Dauphin,	7	281	60	19,119	53,225
Erie,	1	300	18	7,900	24,400
Lancaster,	48	290	557	119,394	379,491
Lebanon,	1	240	17	5,000	11,638
Lehigh,	2	277	36	9,846	37,618
Montgomery,	1	300	80	25,000	80,000
Northampton,	1	313	2	548	1,500
Philadelphia,	16	290	1,238	645,613	1,496,087
Snyder,	1	180	2	94	375
York,	11	290	99	15,526	55,353
Totals, 1885.	119	280	2,974	$1,077,732	$3,205,450
Totals, 1884,	44	275	1,953	718,912	2,587,897
Increase,	75	5	1,021	$358,820	$617,553

NOTE.—The average annual wage fund, if divided share and share alike, would give to each employé about $362, or an average of about $6 96 per week.

MANUFACTURES—MISCELLANEOUS—Continued.

Slate.

COUNTY.	No. of establishments.	Average number of days in operation.	No. of persons employed.	Amount paid in wages.	No. of squares (100 sq. ft.) roofing slate made.	No. of cases of school slates.	No. of square feet of blackboards, mantels, flagging, &c.	Value of product.
Lehigh,	19	250	777	$237,196	68,623	22,104	1,115,916	$397,209
Northampton,	22	240	1,466	461,166	150,908	26,978	800	655,025
Philadelphia,	1	300	18	7,800				38,000
York,	6	236	125	36,894	12,671		15,000	68,113
Totals, 1885,	48	256	2,386	$743,056	232,302	49,082	1,131,716	$1,158,347
Totals, 1884,	53	231	2,436	769,125	341,753	3,000	149,420	1,220,120
Increase,		25				46,082	982,291	
Decrease,	5		50	$26,069	109,451			$61,773

NOTE.—The bulk of the school slate industry was reported in square feet in 1884, and that of blackboards was separate from mantels, flagging, &c.

The average annual wage fund, if divided share and share alike, would give to each employé about $311, or an average of about $5 98 per week.

TABLE *showing the rate of wages paid, if the annual wage fund were divided, share and share alike, to each employé, the number to whom wages are paid, and the actual number of days employed during the year ending December 31, 1885, compiled from the reports of employers made to this Bureau.*

INDUSTRIES.	Number of employés.	Daily wages.	Number of days employed during the year.
Brushes and brush blocks,	160	$6 86	291
Cigars,	2,974	6 96	280
Cordage, rope, twine, &c.,	804	5 15	252
Slate,	2,386	5 98	256
Total employees,	6,324		

RECAPITULATION.

TABLE *of ninety-eight industries, showing the average number of persons employed, the average number of days employed, the value of product, the gross annual wages paid, and the average weekly wages paid, provided the wage fund be divided share and share alike, compiled from returns made by the operators to this Bureau, for the year ending December 31, 1885.*

INDUSTRIES.	Employés.	Days.	Annual wages.	Weekly wages.	Value of product.
Agricultural implements,	1,169	250	$547,874	$9 00	$1,672,018
Axes, spades, and saws,	2,136	295	1,079,339	9 80	2,964,270
Bags, boxes, and envelopes,	1,278	292	297,749	4 48	963,939
Barrels and casks,	387	220	152,462	7 57	698,724
Bessemer steel,	12,309	269	5,345,506	8 35	23,195,220
Boats,	90	230	22,335	4 77	52,125
Bolts and nuts,	1,402	270	464,580	6 37	1,914,487
Boilers and general machinery,	1,639	290	761,035	9 00	2,362,424
Blast furnaces,	7,634	250	2,988,510	7 79	22,259,902
Bloomaries and forges,	236	166	61,708	5 00	317,101
Boots and shoes,	4,547	280	1,732,385	7 48	5,925,808
Brass bronze, and copper,	467	300	261,316	13 33	1,040,053
Bridges,	757	240	348,602	9 00	1,977,542
Brushes and brush blocks,	160	291	57,200	6 81	177,175
Builders' hardware,	95	295	39,053	8 00	125,650
Breweries,	2,805	238	1,702,500	11 67	13,134,450
Boxes, (wood,)	961	260	276,781	5 54	1,219,030
Cars,	18	300	5,798	6 20	7,856
Carriages,	1,381	290	582,107	8 11	1,662,264
Carders,	15	175	1,298	1 65	12,975
Carpets,	10,299	276	3,436,525	6 40	14,359,889
Chains,	88	178	23,000	5 00	128,200
Cigars,	2,974	280	1,077,732	6 96	3,205,450
Clothing,	3,820	300	1,225,186	6 15	5,317,961
Coal, anthracite,	95,055	196	32,964,284	6 67	120,000,000
Coal, bituminous and coke,	44,006	195	14,240,774	6 21	50,000,000
Coffins and caskets,	408	294	190,678	8 98	640,025
Cordage,	804	252	215,864	5 15	2,255,910
Cotton,	6,725	265	1,871,903	5 34	6,946,279
Cotton and woolen,	5,350	288	1,713,527	6 15	6,267,598
Coverlets,	209	300	66,916	6 15	272,298
Crucibles,	153	303	77,097	9 67	279,583
Crucible steel,	4,487	276	2,425,439	10 40	7,737,290
Dress goods,	582	296	231,477	7 63	53,000
Dress trimmings	2,056	300	593,392	5 53	2,961,671
Distilleries,	297	153	135,701	8 79	1,100,436
Dyers,	1,322	300	611,146	8 88	1,934,203
Earthen ware,	792	253	223,180	5 40	477,448
Electric supplies,	8	260	2,300	5 50	12,500
Elevators,	92	300	57,176	12 00	198,822
Felt goods,	24	283	11,295	9 09	42,926
Files and rasps,	460	255	164,683	7 00	327,390
Fire-brick,	245	303	467,615	9 67	1,029,745
Foundries and machine shops,	17,686	275	7,807,657	8 46	19,420,197
Forgings,	60	270	20,000	6 43	47,000

Recapitulation—*Continued.*

INDUSTRIES.	Employés.	Days.	Annual wages.	Weekly wages.	Value of product.
Furnaces, (sheet-iron,)	25	300	$12,500	$9 68	$54,000
Furniture,	3,382	265	1,499,199	8 54	3,956,733
Gas and steam supplies,	203	303	92,943	9 00	241,242
Galvanized ware,	80	308	35,249	8 45	50,000
Glass, plate,	2,174	208	1,194,286	10 60	2,154,710
Glass, other than plate,	7,301	247	2,894,581	7 67	5,761,470
Guns and rifles,	5	250	1,200	4 60	2,000
Harness and trunks,	205	298	92,265	8 65	360,703
Hats and caps,	2,340	262	1,033,141	8 48	3,148,710
Hosiery and knit goods,	11,433	275	2,949,208	4 92	11,294,831
Hubs and spokes,	512	225	182,964	6 88	589,322
Injectors,	10	305	5,781	11 00	10,740
Iron ore,	2,026	235	427,516	4 00	1,641,948
Jeans,	168	290	71,637	8 07	249,670
Lace goods,	298	300	66,913	7 03	289,760
Locks and safes,	483	284	207,785	8 25	463,669
Morocco,	2,423	300	1,269,195	10 05	6,267,788
Musical instruments,	316	291	155,733	9 46	432,510
Petroleum refiners,	3,224	252	1,372,662	8 12	15,061,173
Paper and paper goods,	2,650	272	1,019,576	6 96	5,932,702
Planing-mills,	5,127	260	2,034,413	7 25	7,812,113
Print goods,	956	305	277,436	5 57	150,000
Printing and publishing,	6,675	310	3,262,932	9 36	12,000,000
Pipes and tubing,	3,437	295	1,271,041	7 00	8,855,468
Railings, (fence.)	21	300	11,300	10 35	31,949
Railways, steam,	79,210	313	45,817,824	11 25	
Rolling-mills,	32,751	226	13,881,848	8 15	50,000,000
Railways, street,	4,398	313	2,535,378	9 76	
Saw-mills,	11,138	133	2,590,520	4 50	11,949,122
Scales,	116	305	62,630	10 40	196,935
Screws, (iron,)	24	305	8,320	6 67	21,532
Shafting,	522	290	268,379	10 00	1,097,401
Shawls,	312	270	99,224	6 11	549,151
Ships and ship engines,	729	307	393,297	10 40	812,640
Shoddy,	87	302	32,283	7 11	177,190
Silk,	1,508	300	361,843	4 59	1,470,000
Shingle-mills,	213	126	46,701	4 69	207,600
Slate,	2,386	256	743,056	5 98	1,158,347
Smelting,	19	302	13,342	13 40	115,139
Staves and shooks,	201	180	53,249	5 25	169,300
Steel pens,	30	300	8,500	5 44	25,000
Tanneries,	5,099	285	2,017,327	7 59	23,098,870
Terra cotta,	75	300	38,600	9 88	272,070
Tin-ware,	122	275	44,687	7 00	159,732
Tools,	858	267	341,331	7 66	1,094,087
Towels,	209	209	69,968	6 42	281,590
Upholstery goods,	1,271	300	466,269	7 03	1,749,256
Wire goods,	841	280	201,303	4 62	2,347,008
Wheelbarrows, (steel,)	11	265	4,494	7 86	27,869
Wooden ware,	272	250	106,558	7 51	387,050
Woolen goods,	7,173	250	2,249,993	5 96	10,171,188
Worsted goods,	2,001	300	779,905	7 48	4,111,034
Yarns,	6,449	253	1,859,167	5 54	12,527,426

Total employés,	451,987	Average weekly wages,	$7 00
Total annual wages,	$182,989,624	Total value of product, (excluding railways,)	$537,678,692
Average days employed,	267		

The total amount of annual wages was paid to a greater number of employés than has been reported. The number of employés in each industry only represent the *average* number employed during the year, whilst the wages paid per annum in each industry were divided among all persons employed, whether for a long or short period.

In the coal-mining industry there were at least 14,000 persons employed and who received wages out of the annual wage fund that are not reported among the average number of persons employed.

There were not less than 5,000 laborers employed temporarily upon railroads and who were not returned among the average number employed.

In the textile industries there were 7,000 persons employed that were not returned in the *average* number of persons employed.

If full and accurate allowance could be made for the proportion of wages paid to persons not returned among the *average employed*, the *pro rata* share of all would be much less than what is shown in the table.

TESTIMONY OF EMPLOYEES.

1. 1820. Occupation and address.

A. Coal miner, Banksville, Allegheny county.

2. State whether married or single.

A. Married.

3. If married, how many of a family have you?

A. Two children—girls.

4. How many children have you under fourteen years of age who are engaged at manual labor?

A. Both under fourteen years.

5. How many attend school?

A. Both at school.

6. What is your average daily wages at present?

A. Average daily wages $1 50 when working.

7. How often are you paid?

A. Paid every two weeks.

8. Have your wages been advanced or reduced during the year? If so, state amount of increase per day or week or decrease per day or week.

A. Wages reduced fifteen per cent. April 1.

9. Give an estimate of the number of days lost during the year, to the best of your knowledge, from any cause except sickness.

A. Days lost from break-ups and want of trade, seventy.

10. Give an estimate of the number of days lost through sickness during the year.

A. Twelve by sickness.

11. Give an estimate of the amount expended for medicine and medical attendance on account of sickness in your family during the year.

A. Paid for medical attendance, $3 00.

12. State number of days lost during the year owing to strikes and lock-outs.

A. Lost three weeks owing to strikes.

13. State the cause of strike, and what was the result.

A. Against the fifteen per cent. Lost.

14. What amount of your monthly wages is required for rent of house?

A. $4 00 per month.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 80	4	Eggs, per dozen,	$0 30	2
Cornmeal, per pound,	5		Lard, per pound,	11	4
Oatmeal, per pound,	5	1	Cheese, per pound,	14	
Rice, per pound,	10	1	Soap, per pound,	9	6
Beans, per quart,	20	1	Starch, per pound,	10	1
Potatoes, per bushel,	60	1	Boots, per pair,	4 00	1
Cabbage, per head,	6	5	Shoes, per pair,	1 50	4
Sausage, per pound,	10	2	Coal, per ton,	1 00	1
Beef, per pound,	14	20	Flannels, per yard,	40	1
Tea, per pound,	80	1	Calicoes, per yard,	8	5
Coffee, per pound,	18	2	Lawns, per yard,	8	1
Milk, per quart,	8	8	Toweling, per yard,	10	4
Molasses, per quart,	10	4	Medicine,	2 00	
Sugar, per pound,	8	12	School-books,	2 50	
Butter, per pound,	25	8	Churches, charities, &c.,	3 00	

Has there been any change in rent or in the price of groceries, provisions, clothing, &c., during the past year?

A. No change in rent or provisions.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. I was employed in the coal mines in the County Durham, England, from 1852 to 1869, when I came to this country. I was better off there than I am here at the present time. The miner's lot is a very hard one; wages are very low and work unsteady. We have a company store here, and are expected to deal in it.

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1. 1819. Coal miner, Esson, Allegheny county, Pa.
2. Married.
3. Nine children living.
4. Not any at wage labor.
5. We have three that should be at school, but are not for want of means to buy warm clothing and books.
6. $1 25.
7. Monthly, the nearest Saturday to 15th.
8. $1 20 per week, or twenty cents per day. We, the coal miners of the Pittsburgh district, had a reduction of sixteen per cent. last year.
9. Ninety days.
10. Fifteen days.
11. About $30 00.
12. About twenty days.
13. The cause of strike was resisting reduction. Result was defeat.
14. $6 00 per month.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 49 lbs.	$1 60	4 to 5	Lard, per pound,	$0 10	
Oatmeal, per pound,	7		Cheese, per pound,	16	
Rice, per pound,	10		Cod-fish, salt, per pound	7	
Beans, per quart,	10		Mackerel, per pound,	10	
Potatoes, per bushel,	70		Ham, per pound,	13	
Cabbage, per head,	5		Soap, per pound,	5	
Pork, per pound,	10		Starch, per pound,	10	
Sausage per pound,	12½		Boots, per pair,	3 65	
Beef, per pound,	8		Shoes, per pair,	1 50	
Lamb or mutton, per lb.	10		Coal, per ton,	1 10	
Tea, per pound,	60		Blankets, per pair,	4 00	
Coffee, per pound,	17		Sheetings, per yard,	10	
Milk, per quart,	5		Flannels, per yard,	40	
Molasses, per quart,	20		Calicoes, per yard,	5	
Sugar, per pound,	8		Toweling, per yard,	8	
Butter, per pound,	40		Medicine, patent,	25	
Eggs, per dozen,	25				

Will not try to make a calculation of the consumption, because when work is slack there are many articles mentioned in this sheet which the consumption of is not regular. We have to live according to our income.

These are the prices in the "pluck-me" store, or company store, except such as milk, fresh beef, fresh pork, sausage, lamb, or mutton, which we get from the butcher when we are able to afford such luxuries.

Has there been any change in rent or in the price of groceries, provisions, clothing, &c., during the past year?

A. There has been no material change in the prices of the articles above named.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. I never was in Europe, was born in Canada. Worked at mining in Nova Scotia, both in the coal mines and gold mines. Came to this country eight years ago. My condition there was better as a coal miner than my present condition here. The cost of living there was not near as high as here, and work, as a general rule, was steady. House rent there is not half as high as here. There is not so much petty tyranny used there as here. We had not a conspiracy law there to harass the miners with the same as here in Western Pennsylvania. Here, in the time of wage disputes, the operators generally trump up a charge of conspiracy against the men that take leading part, get them arrested, and put them in jail in order to intimidate the rest; they have either to lay in jail or get bail for their appearance at court, and many times men who are good citizens are thus dealt with when there are no grounds nor proof against them. When the trial comes up, and the coal operators and their coal and iron police cannot

prove the charge against them, the cost of such trial is thrown on the county where they reside. On the other hand, they can conspire together if one of them discharges a man because he knows or says too much, the other ones will not hire him; thus many a good and loyal citizen of this free country is forced to submit in silence for fear of himself, wife, and little ones being deprived even of the scanty living which we get from our toil. This is the way the conspiracy law works among us. In my opinion, the only way to remedy this evil is to erase the law from the statutes of the State.

The hours of coal miners at work are very hard to get at owing to the time of going to work being so irregular. They will be going to their work all hours, from one o'clock, A. M., till seven, A. M., but where I am working at present I think the hours will be from eleven to twelve hours per day. The miners in this district are very poorly paid; at present we are paid two and a half cents per bushel of seventy-six pounds screened over one and a half inch screen, and get no pay for what goes through said screen. In the first of the year 1882, the price for the same coal, run over the same kind of a screen, was four cents per bushel of seventy-six pounds. You can see the sweeping reductions we have suffered since that time. Arbitration and conciliation are far ahead of strikes, in my opinion. The coal miners of the Monongahela river have just ended a very hard fought strike to maintain their wages, but after suffering privations and even hunger in their families for months, they were defeated, and had to return to work at the terms of the coal operators. The miners wanted to submit their case to arbitration, but the operators would not consent to abide by the decision of the umpire.

The labor laws of this State, in my opinion, are very good if they were enforced, but we can see them violated every day, and no penalty inflicted for violating the same. The mining law, if it was enforced, would do, but it is left with the miners, in a great many cases, to enforce it, and they are not prepared to do so for the want of the means.

Immigrant labor, I believe, will regulate itself through time, but will cause a great amount of hardship before that time comes. This immigrant labor is teaching the employers a lesson of late, such as the trouble they had in Cleveland and the present trouble they have in the coke regions of this State with their imported labor. If I had kept an accurate account, I could have done more justice in filling up this circular, but I never saw one of these before.

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1. 1821. Miner, Banksville, Allegheny county, Pa.
2. Married.
3. Six (6)—four (4) girls, two (2) boys.
4. None working; the oldest is eleven (11) years old.

5. Four (4) attending school.

6. The average is one dollar and a half ($1 50) per day.

7. We are paid every two (2) weeks.

8. We have been reduced an average of thirty (30) cents per day.

9. I lost one hundred and fifty-three days through fire and for want of trade, not counting Sundays.

10. I lost ten days through sickness in the family.

11. For medicine and attendance, twelve dollars ($12).

12. None.

14. None: we live in our own house. The taxes are as follows: County, State, and poor, $4 02; school, $5 48; road, $2 17; total, $11 67.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption
Flour, per sack of 24 lbs.	$0 80	6	Butter, per pound,	$0 35	10
Oatmeal, per pound,	6	2	Eggs, per dozen,	28	1
Rice, per pound,	10	4	Lard, per pound,	10	6
Pork, per pound,*	12½	32	Cheese, per pound,	15	4
Tea, per pound,	80	1	Soap, per pound,	10	7½
Coffee, per pound,	17	4	Starch, per pound,	10	1½
Sugar, per pound,	9	24	Shoes, per pair, †	1 40	2

* This is the average of pork, sausage, beef, mutton, and veal. †This is the average.

Has there been any change in rent, or in the price of groceries, provisions, clothing, &c., during the past year?

A. There have been slight changes in some of the groceries. Flour is five cents per sack, of forty-nine pounds, cheaper than in the beginning of the year. Potatoes, seventy-five cents per bushel, and consumed during the year, twenty-four bushels. Milk is eight cents per quart, but I keep a cow, which gives us all we want, and some little to spare. The other questions I cannot answer, having no account of anything excepting coal. The operator keeps one dollar per month of my wages for the coal we burn, but he only allows us nut coal; we have to pay for hauling, which makes it about two dollars per month. If we take lump coal it costs about fifty cents a month more.

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1. 1827. McDonald Station, Washington county, Pa.

2. Married.

3. Two sons, myself, and wife.

4. I have not any under fourteen years.

5. Not any.

6. Am not working at present, but would say seventy-five to eighty cents

is a good average in this neighborhood. There are, perhaps, fourteen hundred wage workers in this locality.

7. Once a month.

8. Twenty per centum. We also suffered reductions in the year just closed.

9. We worked about half time where I was employed, (and where I had been for eight years;) finally, we were reduced to about one fourth time, or less, and then I left that place.

10. Would say six days.

11. $5 00, I believe, would cover all.

12. Not any at the place where I worked.

14. Five dollars for three rooms, per month, was the prevailing rent in the company's houses; one dollar for sharpening the miner's tools per month; fire coal, two dollars and twenty-five cents ($2 25) per month.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$0 75	4	Eggs, per dozen,	$0 25	1
Cornmeal, per pound,	2		Lard, per pound,	10	10
Oatmeal, per pound,	5	5	Cheese, per pound,	15	10
Rice, per pound,	10	2	Cod-fish, salt, per lb.,	8	
Beans, per quart,	10	2	Mackerel, per pound,	8	
Potatoes, per bushel,	60	1½	Ham, per pound,	14	
Cabbage, per head,	10		Soap, per pound,	5	10
Pork, per pound,	10		Starch, per pound,	10	2
Sausage, per pound,	12		Boots, per pair,	3 50	4 pairs a yr.
Beef, per pound,	15	20	Shoes, per pair,	2 50	
Veal, per pound,	15		Coal, per ton,	1 85	1
Tea, per pound,	60	1	Blankets per pair,	5 00	1 pr. yearly.
Coffee per pound,	16	4	Sheetings, per yard,	8-10	2 sh's a yr.
Milk, per quart,	5	31	Flannels, per yard,	20-50	10 yds. a yr.
Molasses per gallon,	75	1	Calicoes, per yard,	6-12	12
Sugar, per pound,	6 to 10	18	Toweling, per yard,	6-12	4
Butter, per pound,	35	12	Churches, charities, &c.,	1 00	per month.

Has there been any change in rent, or in the price of groceries, provisions, clothing, &c., during the past year?

A. In some localities the tendency is to a shrinkage in values, whilst in others it is not so marked. Supply and demand control, to a great extent, what rent shall or shall not be paid in the different localities.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

In answer to the above inquiry, I will endeavor to briefly give you my views. Volumes have been written on this question. I will use as a standard my own knowledge, as that is the only means by which correct conclusions can be reached.

I worked for the Coaltness Iron Company. Their works are situated

sixteen miles from Glasgow, on the Caledonian railroad, in the west of Scotland, not far from the famous Bothwell bridge. I worked for that company from 1851 to 1868, or about seventeen years, and emphatically say that I was better off then than I have ever been since I worked in the mines in that country. Eight hours constituted a day's work there—sometimes less. Here I see men working fourteen, sixteen, and eighteen hours, and I know that some of them go into the mines on Sunday, trying to make a living and cannot, while their employer owns Sunday-schools, churches, preachers, Government bonds—Federal, State, city, water, street, and, in fact, all kinds of bonds—with yachts, steamboats, orange plantations, and are very rich.

As an instance, I know of forty people living in a little house of three rooms. It is a common thing for seven persons to live in one room. Such things would not be tolerated in Europe, but we have dukes, earls, marquisés, lords, &c., in this country. There is nothing in a name—it is the actions. These fellows claim passive obedience, together with the dispensing power, and there seems to be no remedy. The wage laborer is worse off in this country than in England. We hold up the three hundred dollar law. What is it to the man that has not one dollar? Arbitration and conciliation will never remedy the evil complained of, for the reason that our employers are insincere. If this charge is incorrect, I would ask, why do employers use every means to get rid of their most intelligent men? Because they can deal with ignorant workmen in a way that will suit their interests better. Favoritism is another of the evils complained of every place you go to.

In my opinion, our monetary system is at the bottom of all our troubles. We have no law. The little we have is ornamental. There is no one to enforce it; the inspectors do not and we dare not. This relic of barbarism is the most infamous law that ever disgraced the statute books of any despot, to say nothing of our pretensions in this country—of the liberty-loving people that we are, or claim to be. It is passing strange that such a law is allowed to remain on our statute books.

In some articles the purchasing power of money is ten times as great in Great Britain as in this country. I rented there for one dollar per month; here I pay six dollars for the same amount of room. Clothing is more durable in that country than in this. A great many articles for family use can be bought in England for a penny that cost from ten to twenty cents in this country.

The emigrant is brought here for corporate and individual interests—the railroad interest, the land interest, the steamship interest, backed by the manufacturing interest. In fact, he is an easy prey for the sharks, who are ever ready to devour him.

1. 1807. Boiler or puddler, Pittsburgh, Pa.
2. Married.
3. Myself, wife, and six children.
4. One boy, who will be fourteen next birthday.
5. Two.
6. $3 00.
7. Every two weeks.
8. Reduced June 1, 1885. Reduced ten per cent.
9. Lost about two hundred days. Cause—depression of trade.
10. Three.
11. From $22 00 to $35 00.
12. None.
14. $12 00 per month.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 80	6	Cheese, per pound,	$0 15	8
Rice,	8	4	Ham, per pound,	12	30
Potatoes, per bushel,	70	1	Soap, per bar,	20	4
Cabbage, per head,	5	3	Starch, per package,	10	1
Pork, per pound,	8	4	Shoes, per pair,	4 00	
Sausage, per pound,	10	4	Coal, per bushel,	9	30
Beef, per pound,	10	20	Blankets, per pair,	2 00	
Lamb or mutton per lb.,	10	8	Sheetings, per yard,	6	
Tea, per pound.	80	2	Flannels, per yard,	15-40	
Coffee, per pound,	25	2	Calicoes, per yard,	4-12	
Milk, per quart,	7	10	Toweling, per yard,	5-20	
Molasses, per quart,	10	4	Medicine,	10 00	
Sugar, per pound,	7	30	School books, year,	10 00	
Butter, per pound,	25	14	Churches, charities, &c., about,	2 00	
Eggs, per dozen,	25	2			
Lard, per pound,	8	6			

Has there been any change in rent or in the price of groceries, provisions, clothing, etc., during the past year?

A. No change in rent; none of any account in groceries.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. I worked in Wales until I was thirty years of age. Have been in this country thirteen years. Occupation the same. My condition there was as good as it is here. Wages were not as high as they are here, but comparing the cost of living there to what it is here, it brings me on the same level there and here. House-rent here, twelve dollars per month; house-rent in Wales, two dollars a month and a better house. A suit of clothes would cost me here thirty dollars; in England, fifteen. Groceries nearly the same.

Flour cheaper. Shoes about two thirds of what they are here. I have been considering the condition of the working-class in general in this country and England, and my candid opinion is, that the workingman in England is as well off as he is here. Having done my best to give you all the information you need, I could not give you a definite answer in regard to blankets, but I can say this: bed-clothing, etc., cost about twenty five dollars a year.

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1. 1816. Coal miner, Coal Valley, Allegheny county, Pa.
2. Married.
3. Eight children.
4. One.
5. Three.
6. $2 50.
7. Once a month, if it suits the operator.
8. Decreased fifty cents per day.
9. Two hundred and fifty, not including Sundays, and worked sixty.
10. Three days.
11. $9 00.
12. One hundred and thirty working days, not including Sundays.
13. Struck three weeks for an advance of one half cent per bushel and got the advance; struck against a reduction from three cents per bushel to two and one fourth cents, and after a protracted struggle of four months, started in 1886 for two and one half cents per bushel.
14. I pay $100 per year for house, garden, and other privileges. The average rent paid by miners in company houses is $3 50 per month; at the present rate for mining coal, it will average $1 00 a month.

Has there been any change in rent or in the price of groceries, provisions, clothing, &c., during the past year?

A. Rents in company houses rise and fall with the price of mining. I believe everything except flour has been reduced a little, but not much.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation and your condition there compared with your present condition in this country.

A. Have been employed as a coal miner in England, county of Northumberland. For a number of years my condition was decidedly better. As proof, I will state that six years since I came to this country with wife and five children, or seven all told. I was able to pay their way over along with me, and had enough money left (when I got to my destination in Westmoreland county) to purchase all necessaries for housekeeping, furniture, tools to work with, etc., but to-day, (though some of my family have grown up to help me a little,) were I to sell off everything I am possessed of I could not pay off the debts I owe, much less pay our way back to Europe.

In England I worked but six hours per day, averaging about two hundred and fifty days in the year, at the rate of one dollar and forty cents per day, with house, garden, and coal for twenty-four cents per lunar month, with medical attendance and medicine, whenever needed, at the same rate, besides having no taxes to pay, as the coal company had to pay the tax on their houses we lived in.

Here a miner only gets an opportunity to work a few months in the year, and consequently has to work all the hours God sends—in fact, make a beast of himself or else starve.

In England operators build reading-rooms and lecture-halls for their employés, to which every one has free access at a merely nominal payment to keep up the stock. Here he don't need them, for while working he can think of nothing else.

Organization has done more to bring the English employer and employé in closer relationship than anything else I know of. For two years previous to my leaving, a sliding scale was adopted by the Northumberland miners, and strikes are things of the past. The operators throw open their books every three months, and the price realized by them fixes the price of mining for the next three months. Here their motto is, "Take all you can."

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1. 1830. Miner, Allegheny county, Pa.
2. Married.
3. Four children.
4. None.
5. The two oldest, aged eight and six years.
6. $1 50.
7. Once a month.
8. Thirty cents a day decrease.
9. One hundred and forty-three.
10. None.
11. $10 00.
12. Sixty-five.
13. A reduction in the price of mining of sixteen and two thirds per cent. Miners had to accept reduction.
14. $5 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 75	4	Coffee, per pound,	$0 18	
Oatmeal, per pound,	5		Milk, per quart,	10	
Rice, per pound,	10		Molasses, per quart,	20	
Beans, per quart,	5		Sugar, per pound,	8⅓	
Potatoes, per bushel,	50		Butter, per pound,	30	
Cabbage, per head,	5		Eggs, per dozen,	30	
Pork, per pound,	12		Lard, per pound,	10	
Sausage, per pound,	10		Cheese, per pound,	18	
Beef, per pound,	12½		Ham, per pound,	13	
Lamb or mutton, per lb.	11		Soap, per pound,	10	
Veal, per pound,	10		Starch, per pound,	10	
Tea, per pound,	60		Coal, per ton,	1 50	

Has there been any change in rent or in the price of groceries, provisions, clothing, &c., during the past year?

A. A slight reduction.

I am a miner employed by W. L. Scott. In January and February we worked only on part time on account of no demand for the coal. On the 15th of February, our employer offered us a reduction from three dollars per hundred bushels to two dollars and fifty cents, which the miners refused to accept, and came out on a strike, which lasted until the 1st of May, when the miners went to work at the reduction, and worked on an average twenty-two days a month until the 1st of December, when the mines were closed.

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1. 1841. Glass-blower, Pittsburgh.
2. Married.
3. Six.
4. None.
5. One.
6. When working, $5 00 per day.
7. Every week, but not in full.
8. Striking now against a reduction of ten per cent.
9. Six months in 1885, and idle at present.
10. Three days.
11. $110.
12. Six months.
13. A reduction of wages. Still out.
14. $12 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 75	1½	Eggs, per dozen,	$0 28	3
Cornmeal, per pound,	2	5	Lard, per pound,	10	3
Oatmeal, per pound,	5	5	Cheese, per pound,	18	3
Rice, per pound,	10	3	Cod-fish, salt, per pound	5	
Beans, per quart,	10	5	Mackerel, per pound,	8	3
Potatoes, per bushel,	65	1	Ham, per pound,	12	4
Cabbage, per head,	7	6	Soap, per pound,	5	6
Pork, per pound,	8	15	Starch, per pound,	5	1
Sausage, per pound,	13	4	Boots, per pair,	7 00	
Beef, per pound,	10	15	Shoes, per pair,	3 00	3
Lamb or mutton, per lb.	12	5	Coal, per bushel,	8	40
Veal, per pound,	15		Blankets, per pair,	5 00	
Tea, per pound,	80	1	Sheetings, per yard,	13	10
Coffee, per pound,	14	4	Flannels, per yard,	40	6
Milk, per quart,	8	12	Calicoes, per yard,	8	15
Molasses, per quart.	15	2	Lawns, per yard,	12	
Sugar, per pound,	8	15	Toweling, per yard,	8	8
Butter, per pound,	35	8	School-books,	5 00	

Has there been any change in rent or in the price of groceries, provisions, clothing, &c., during the past year?

A. Everything has advanced in prices.

I believe in arbitration, but the manufacturers will not have it. I believe the conspiracy laws should be repealed—they are unjust to the workingman. I believe that eight hours is enough time to work. We work eight hours and a half. I think that most of our labor troubles are caused by foreign labor being imported to this country by the manufacturers. I think that the tariff should be raised on all manufactured articles, and no rebates allowed. There should be an officer appointed to go around and visit all work-shops to see that no children under fourteen years of age are working. There are any amount of them working. The condition of laboring classes in this city is very bad; their wages are very low; they do not average six dollars a week the year round. Hardly enough to live. I think their condition should be bettered. Natural gas and the best natural resources in the world, and still they don't want to give the laboring man one cent more.

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1. 1845. Heater, Apollo, Armstrong county, Pa.
2. Married.
3. Seven.
5. Four.
6. $4 00.
7. Every alternate Monday.
8. Sixty cents decrease per day.
9. Unable to answer.

11. $3 00.

12. Eight.

13. For signing of scale of wages; same signed after eight days' stoppage.

14. $9 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$1 50	2	Eggs, per dozen, . . .	$0 30	2
Cornmeal, per pound,	1		Lard, per pound, . .	10	4
Oatmeal, per pound, .	5		Cheese, per pound,	13	5
Rice, per pound, . .	8		Cod-fish, salt, per lb., .	10	
Beans, per quart, .	10		Ham, per pound, . . .	13	10
Potatoes, per bushel, .	50		Soap, per pound, .	8	6
Cabbage, per head, . .	10		Starch, per pound, . .	10	2
Pork, per pound, . .	8		Boots, per pair, ...	3 00	1
Sausage, per pound, .	10		Shoes, per pair, ...	2 00	4
Beef, per pound, .	12½	79	Coal, per bushel, . . .	6	25
Lamb or mutton, per lb.	12½		Blankets, per pair. .	6	2
Veal, per pound, . . .	12½		Sheetings, per yard, .	25	
Tea, per pound, ...	50	2	Flannels, per yard, . .	37	
Coffee, per pound, . .	18	1	Calicoes, per yard, .	10	
Milk, per quart, ...	6	12	Toweling, per yard, . .	10	
Molasses, per quart, .	12½	4	School books, .	10 00	
Sugar, per pound, . .	10	18	Churches, charities, &c.,	5 00	
Butter, per pound, . .	25	5			

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. In England; hammerman in rolling-mill. My condition in England compares favorably with my condition since taking up my residence in this country.

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1. 1846. Boiler, Kittanning, Armstrong county, Pa.

2. Married.

3. Two.

4. None.

5. None.

6. $3 25.

7. Every two weeks.

8. Fifty cents per ton reduction.

9. The mill that I work in was off the first six months of 1885; for the rest of the year ran about half time.

10. None.

11. Last year's bill $21 00.

12. None.

14. I own the house I live in.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$1 50	1	Milk, (got a cow.) . .		
Cornmeal, per pound,	2½		Molasses, per quart, .	$0 20	1
Oatmeal, per pound, .	7	5	Sugar, per pound, . .	8⅓	3
Rice, per pound, . . .	8	½	Butter, (make it.) . .		
Beans, per quart, .	5		Eggs, per dozen. . .	22	1
Potatoes, per bushel, .	50	3	Lard, per pound, . .	11	1½
Cabbage, per head, . .	5	2	Cheese, per pound, .	15	
Pork, per pound, . .	5	25	Mackerel, per pound, .	8	½
Sausage, per pound, .	8	3	Ham, per pound, . .	12½	
Beef, per pound, . . .	12½	6	Soap, per cake. . .	5	3
Lamb or mutton, per lb.	14		Starch, per pound, . .	8	¼
Veal, per pound, . . .	11		Coal, per ton, .	2 75	
Tea, per pound, . . .	60	¼	Churches, charities,		
Coffee, per pound, . .	18	2	etc., (none,)		

1. 1847. Miner, Leechburg, Pa.
2. Married.
3. Wife and one child.
4. None.
5. None.
6. $2 25.
7. Monthly.
8. No.
9. Twenty-five.
10. Eight.
11. $12 00.
12. None.
13. None.
14. Five dollars and fifty cents.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$0 75	2	Lard, per pound, . . .	$0 10	2
Cornmeal, per pound,	2		Ham per pound, . . .	12½	16
Oatmeal, per pound, .	5		Soap, per pound, . . .	5	5
Rice, per pound, . . .	8	3	Starch, per pound, . .	10	1
Beans, per quart, . .	10	2	Shoes, per pair, . . .	2 00	½
Potatoes, per bushel, .	50	1	Coal, per ton, ...	1 50	1
Cabbage, per head, .	8	4	Sheetings, per yard, .	8	3
Beef, per pound, . .	12½	16	Flannels, per yard, . .	35	4
Tea, per pound, ...	50	1	Calicoes, per yard, . .	7	7
Coffee, per pound, .	15	4	Lawns, per yard, . .	8	6
Milk, per quart, ...	6	17	Toweling, per yard, .	8	6
Sugar, per pound, . .	8	12½	Medicine, . .	16⅔	
Butter, per pound, .	25	3	Churches, charities, &c.,	5 00	
Eggs, per dozen, . .	25	1			

Has there been any change in rent or in the price of groceries, provisions, clothing, etc., during the past year?

A. Yes.

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1. 1852. Miner, Barclay, Bradford county, Pa.
2. Married.
3. Nine.
4. One.
5. Three.
6. $1 75.
7. Once a month.
8. Decreased eighteen cents per day.
9. About eighteen days for repairs.
10. None.
11. About $40 00.
12. None.
14. $2 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$0 95	*12 bbl.	Lard, per pound, . .	$0 12½	120
Cornmeal, per pound,	2		Cheese, per pound, . .	18	75
Oatmeal, per pound, .	8	25	Cod-fish, salt, per lb., .	12½	5
Rice, per pound, .	10	25	Mackerel, per pound, .	10	10
Beans, per quart.	10	6	Ham, per pound, . . .	12½	75
Potatoes, per bushel, .	50	40	Soap, per pound, .	6	288
Cabbage, per head,	5	50	Starch, per pound, .	8	10
Pork, per pound, salt,	12	400	Boots, per pair, .	3 50	5
Sausage, per pound, .	14	50	Shoes, per pair, ...	1 00	18
Beef, per pound.	12–16	350	Coal, per ton, . . .	2 00	20
Lamb or mutton, per lb.,	12½	50	Blankets, per pair, . .	6 00	2
Veal, per pound, . .	12½	50	Sheetings, per yard, .	6	50
Tea, per pound, .	50	36	Flannels, per yard, . .	50	40
Coffee, per pound, . .	28	15	Calicoes, per yard, . .	6	60
Milk, per quart,	7	400	Lawns, per yard, . .	10	30
Molasses, per quart, .	22½	25	Toweling, per yard, .	15	40
Sugar, per pound, . .	9	300	Medicine, ...	1 00	10
Butter, per pound, . .	20	300	School-books, . .	5 00	
Eggs, per dozen, . . .	18	25	Churches charities, &c.,	15 00	

* Keeps a boarding-house.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country?

A. Wales. A miner. My condition was as good there as in this country.

I think the mining law of the State of Pennsylvania should be greatly changed. They should not have so many inexperienced mining-bosses as they have. The board of examiners have granted a certificate of service to a man who never worked in or about the mine, any more than dump coal

or work in the woods. There have been two men killed in said mines within two months.

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1. 1856. Printer, Towanda, Bradford county, Pa.
2. I am married.
3. One girl.
4. Not any.
5. Not any.
6. About $9 00 a week.
7. Sometimes in full, and other times I have to wait for it.
8. My wages are the same.
9. About eight days.
10. About two.
11. About $20 00.
12. Not any.
14. My rent is about $4 00 per month.

Has there been any change in rent or in the price of groceries, provisions, &c., during the past year?

A. There has not been any except in butter, which is twenty cents per pound, and eggs, which are twenty-eight cents per dozen.

Wages in this place are quite low, the week hands receiving from $7 00 to $9 00, and the thousand hands receiving but twenty-two cents per thousand, and it is hard work for them in a day of ten hours to make $9 00 a week. The printer is one of the poorest-paid laborers in this section. There are several classes of workmen who have not had to give three years of hard labor to learn their trades who receive larger pay than the printer, and we hope the time will come when the printer may get full compensation for labor done.

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1. 1857. Paper-hanger and dealer in wall-paper, Towanda.
2. Married.
3. One.
4. None.
5. One.
6. $3 00.
7. Sometimes as soon as work is done, and sometimes not in six months.
9. Twenty days.
10. Ten.
11. $50 00.
12. None.
14. House of my own, worth $10 00 a month.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$0 80	2	Eggs, per dozen, . . .	$0 25	3
Cornmeal, per pound,	1½		Lard, per pound, . .	14	5
Rice, per pound, . . .	6	1	Cheese, per pound,	14	
Beans, per quart,	10	2	Mackerel, per pound, .	6	
Potatoes, per bushel, .	50	1	Ham, per pound. . . .	12	
Cabbage, per head, . .	10	2	Soap, per pound, .	8	8
Pork, per pound, .	10	8	Starch, per pound, . .	10	3
Sausage, per pound, .	10	4	Shoes, per pair,	3 00	6
Beef, per pound,	12½	25	Coal, per ton,	4 00	1
Lamb or mutton, per lb.,	12		Blankets, per pair, .	5 00	
Tea, per pound, . .	75	1	Sheetings, per yard, .	10	40
Coffee, per pound, . .	25	4	Flannels per yard,	25	
Milk, per quart,	5	46	Calicoes, per yard.	6	
Molasses, per quart, .	19	2	Toweling per yard, .	10	15
Sugar, per pound, . .	9	20	School-books, for year,	8 00	
Butter, per pound,	22	20			

Has there been any change in rent or in the price of groceries, provisions, clothing, &c., during the past year?

A. Not much change, but what change there is it is cheaper.

---

1. 1858. Nailer, Towanda, Pa.
2. Married.
3. Five.
4. None.
5. One.
6. $3 00.
7. Once a month.
8. Increased ten per cent. in November, last year, but taken off ten per cent. January 1, 1886.
9. About one half time, from breakages through mismanagement and whiskey.
10. Three or four.
11. About $15 00.
12. None.
14. $6 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs,	$0 70		Lard, per pound,	$0 10	
Rice, per pound,	8		Cheese, per pound,	12½	
Potatoes, per bushel,	35		Soap, per pound,	5	
Cabbage, per head,	5		Starch, per pound,	10	
Pork, per pound,	8		Boots, per pair,	2 50	
Sausage, per pound.	10		Shoes, per pair,	1 50	
Beef. per pound,	12		Coal, per ton,	3 50	
Tea, per pound,	50		Blankets, per pair.	4 00	
Coffee, per pound,	18		Sheetings, per yard,	6	
Milk, per quart,	5		Flannels, per yard,	20	
Molasses, per quart,	12½		Calicoes, per yard,	6	
Sugar, per pound,	6		Toweling. per yard,	8	
Butter, per pound,	20		Churches, charities, &c.,	20 00	
Eggs, per dozen,	26				

Has there been any change in rent or in the price of groceries, provisions, clothing, &c., during the past year?

A. None to speak of.

---

1. 1859. Blacksmith, East Troy, Bradford county, Pa.
2. Married.
3. Three children.
4. None.
5. Two.
6. $1 50.
7. Weekly.
8. Has not.
9. Ten.
10. Thirty.
11. $15 00.
12. None.
14. $4 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs	$0 75	3	Molasses, per quart,	$0 15	2
Cornmeal, per pound,	1½	5	Sugar, per pound,	6½	20
Oatmeal, per pound,	5	3	Butter, per pound,	20	12
Rice, per pound.	9	5	Eggs, per dozen,	15	2
Potatoes, per bushel,	35	2	Lard, per pound,	12	5
Cabbage, per head,	10	2	Cheese, per pound,	14	2
Pork, per pound,	8	12	Mackerel, per pound,	8	3
Beef, per pound,	15	6	Soap, per pound,	10	3
Lamb or mutton, per lb.	14	5	Starch, per pound.	10	½
Tea, per pound.	50	½	Shoes, per pair,	1 50	
Coffee, per pound,	25	2	Coal, per ton,	5 40	½
Milk, per quart,	5	40	Churches, charities, &c.,	50	

Has there been any change in rent, or in the price of groceries, provisions, clothing, &c., during the past year?

A. None of any account.

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1. 1863. Miner, Johnstown, Cambria county.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 49 lbs.	$1 50		Lard, per pound,	$0 10	
Oatmeal, per pound,	5		Cheese, per pound,	12-18	
Rice, per pound,	10		Cod-fish, salt, per lb.,	8	
Beans, per quart,	10		Mackerel, per pound,	10	
Potatoes, per bushel,	60		Ham, per pound,	12-14	
Cabbage, per head,	6-10		Soap, per pound,	5	
Pork, per pound,	10-14		Starch, per pound,	10	
Sausage, per pound,	10		Boots, per pair,	3 00	
Beef, per pound,	10-16		Shoes, per pair,	2 00	
Lamb or mutton, per lb.	10		Coal, per ton,	1 80	
Tea, per pound,	40-80		Blankets, per pair,	5 00	
Coffee, per pound,	15-25		Sheetings, per yard,	10-30	
Milk, per quart,	6		Flannels, per yard,	20-50	
Molasses, per quart,	15		Calicoes, per yard,	4-10	
Sugar, per pound,	8-10		Lawns, per yard,	10-20	
Butter, per pound,	20-30		Toweling, per yard,	8-20	
Eggs, per dozen,	20-25		Medicine,	1 00	

JOHNSTOWN, PA., *January 18, 1886.*

Fearing you would not get any information from this place, I send you the best I can. While I have had an experience of twenty years at mining in this State, I cannot see my way clear to mine coal here at present. The average pay of miners here is not more than $30 00 per month when they work steady. The average rent is $8 00 per month, and coal $2 00 per

month; total, $10 00. Have gained the above information by diligent inquiry and also through my wide acquaintance in this place.

To give the amount of articles consumed in my family would do an injustice to the miners, but to say the truth, the whole truth, and nothing but the truth, my consumption is from $5 00 to $10 00 per month more than they earn.

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1. 1864. Coal miner, Hemlock, Cambria county, Pa.
2. Married.
3. Six of family.
4. None.
5. None.
6. $1 20.
7. Once a month.
9. Six months. Depression in coal business.
10. None.
11. $6 00.
12. None.
14. $3 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 75	4	Eggs, per dozen, . . .	$0 20	5
Cornmeal, per pound,.	1⅘	25	Lard, per pound, .	15	4
Oatmeal, per pound, .	4	4	Cheese, per pound, .	15	3
Rice, per pound, . . .	10	4	Cod-fish, salt, per lb., .	6	4
Beans, per quart, .	8	4	Mackerel, per pound, .	6	12
Potatoes, per bushel, .	50	2	Ham, per pound, .	13	
Cabbage, per head,	7	5	Soap, per pound, . . .	5	10
Pork, per pound,	10	15	Starch, per pound,	10	1
Sausage, per pound, .	15	5	Boots, per pair, . . .	3 50	
Beef, per pound,	12	25	Shoes, per pair, . . .	2 00	1
Lamb or mutton, per lb.	12	15	Coal, per ton, .	1 00	1
Veal, per pound,	10	15	Sheetings, per yard, .	12	10
Tea, per pound, .	50	1	Flannels, per yard, .	15	2
Coffee, per pound,	17	2	Calicoes, per yard, . .	8	4
Milk, per quart,	8	40	Toweling, per yard, .	6	2
Molasses, per quart, .	18	4	Medicine,	1 00	
Sugar, per pound, .	7	14	Churches, charities, &c.,	2 00	
Butter, per pound, . .	20	5			

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1. 1865. Rod-mill roller, Cambria city, Pa.
2. Married.
3. Three.

4. None.

5. None.

6. About $2 00 per day. We work by the ton, at the rate of 9.6 cents per ton.

7. Once a month.

8. No.

9. About seventy-five or eighty days; cause was break-down.

10. Ten days.

11. I had sickness in my family for six months, which cost $10 00, besides paying $1 00 per month to a doctor.

12. Not any.

14. $6 50.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$1 50	1½	Butter, per pound,	$0 28	8
Rice, per pound,	10	2	Eggs, per dozen.	25	4
Beans, per quart.	8	2	Lard, per pound,	16	5
Potatoes, per bushel,	60	2	Cheese, per pound,	15	4
Cabbage, per head,	8	4	Ham, per pound,	13	30
Pork, per pound,	12		Soap, per pound,	8	10
Sausage, per pound,	16		Starch, per pound,	10	1
Beef, per pound,	15	25	Boots, per pair,	4 00	
Lamb or mutton, per lb.	16	5	Shoes, per pair,	2 00	
Tea, per pound,	40	1	Coal, per load,	1 62	
Coffee, per pound,	16	3	Sheetings, per yard,	25	
Milk, per quart,	8	15	Flannels, per yard,	50	
Molasses, per quart,	20		Calicoes, per yard,	10	
Sugar, per pound,	8	18	Toweling, per yard,	12	

Has there been any change in rent, or in the price of groceries, provisions, clothing, &c., during the past year?

A. No.

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1. 1867. Miner, New Bethlehem, Pa.

2. Single.

6. $1 25.

7. On the third Saturday of each month.

8. Reduced five cents per ton.

9. Twelve.

10. Ten days.

11. $3 00.

12. None.

13. No strike.

14. Boarder.

Price paid, and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$0 75		Eggs, per dozen,	$0 18	
Cornmeal, per pound,	2		Lard, per pound,	10	
Oatmeal, per pound,	5		Cheese, per pound,	20	
Rice per pound,	10		Cod-fish, salt, per lb.,	10	
Beans, per quart,	6		Mackerel, per pound,	10	
Potatoes, per bushel,	60		Ham, per pound,	12½	
Cabbage, per head.	15		Soap, per pound,	8	
Pork, per pound,	8		Starch, per pound,	10	
Sausage, per pound,	12½		Boots per pair,	4 00	average.
Beef, per pound,	8		Shoes, per pair,	2 00	average.
Lamb or mutton, per lb.	8		Coal, per ton,	1 60	
Veal, per pound,	8		Blankets, per pair,	5 00	average.
Tea, per pound.	75		Sheetings, per yard,	8	
Coffee, per pound,	16		Flannels, per yard,	35	
Milk, per quart,	6		Calicoes, per yard,	7	
Molasses, per quart,	20		Lawns, per yard,	10	average.
Sugar, per pound,	9		Toweling,	8	average.
Butter, per pound,	20		Churches, charities, &c.,	20 00	per year.

Has there been any change in rent, or in the price of groceries, provisions, clothing, &c., during the past year?

A. Very little change in rent. Provisions and groceries are, I believe, somewhat cheaper.

This is a mining district, situated on the low grade division of the Allegheny Valley railroad. The mines are owned and operated by the North-Western Coal and Iron Company. They employ about six hundred men. They have two company stores. Their miners are obliged to buy their goods of them, and their prices are much higher than those I have given you. The latter is about an average of prices at other stores in town.

Before giving a man work, they require him to sign an iron-clad agreement that he will join no labor organization, attend no meetings, join in no strike, or contribute toward any strike or organization, giving them the privilege of deducting their store bill from his wages, and further requiring him to waive all acts of Assembly that have been passed, or may hereafter be passed, in any action they may bring against him for collecting the same.

---

1. 1870. Carpenter, West Monterey, Pa.
2. Married.
3. Nine children.
4. None.
5. Three.
6. $1 50 per day and board myself.
7. At irregular intervals.
8. Reduced 25 per cent. during year.

9. About two hundred days.
10. Ten days.
11. About $20 00.
12. None.
14. Own my house.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$0 62	125	Butter, per pound, . .	$0 20	16
Cornmeal, per pound, .	1½	25	Lard, per pound, . .	10	5
Oatmeal, per pound, .	4	3	Mackerel, per kit, . .	1 40	2
Rice, per pound, . .	9	2	Ham, per pound, . .	16	18
Potatoes, per bushel, .	50	3	Soap, per pound. . .	6	4
Cabbage, per head, . .	10	6	Starch, per pound, .	10	1
Pork, per pound, . . .	8	30	Boots, per pair, . .	4 00	1 pr. a year
Beef, per pound, . . .	10	10	Shoes, per pair, . .	2 00	1 pr. a year
Tea, per pound. .	50	½	Coal, per ton, .	1 25	1 ton a mo.
Coffee, per pound, . .	15	4	Flannels per yard, .	40	10 yds. a yr.
Milk, per quart, . .	5	1 pt. a day.	Calicoes, per yard, .	6	130 " a yr.
Molasses, per quart, .	15	2	School-books per year.	5 00	
Sugar, per pound, .	10	20	Churches, charities, &c.,	10 00	per year.

Has there been any change in rent, or in the price of groceries, provisions, clothing, &c., during the past year?

A. Prices have been lower than last year.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. Never was there and never expect to be; neither do I want to go had I the opportunity.

---

1. 1872. Miner, Houtzdale, Clearfield county, Pa.
2. Married.
3. Five.
4. None.
5. One.
6. About $1 55, average during year for two hundred and forty-one days.
7. Once per month.
8. No alteration of wages during 1885.

9. Seventy-three days lost during 1885.
10. Five.
11. $45 00.
12. No strikes or lock outs.
14. Live in my own property, otherwise would have to pay from $8 00 to $10 00 per month.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$1 00	9	Cheese, per pound, . .	$0 16	8
Rice, per pound, . .	10	4	Ham, per pound, . . .	18	20
Potatoes, per bushel, .	50	3	Soap, per pound, . .	8¼	24
Cabbage, per head, .	20	4	Starch, per pound, . .	15	2
Pork, per pound,	16		Boots, per pair, . . .	5 00	4 pair year.
Sausage, per pound, .	16		Shoes, per pair, . .	3 00	16 pair year.
Beef, per pound, . . .	16	150	Coal, per ton, . . .	2 25	16 tons.
Lamb or mutton, per lb.	16	50	Blankets, per pair,	8 00	2 pair year.
Veal, per pound, . . .	16		Sheetings, per yard, .	33	25 yds year.
Tea, per pound, . . .	50	4	Flannels, per yard, . .	70	
Coffee, per pound, . .	25	4½	Calicoes, per yard,	11	
Milk, per quart, . . .	10	2 per day.	Lawns, per yard, . .	14	
Molasses, per quart, .		2	Toweling, per yard, . .	14	
Sugar, per pound, . .	10		Medicine, ...	25 00	
Butter, per pound, . .	25	30	School-books, . . .	1 25	
Eggs, per dozen, . . .	25	6	Churches, charities, &c.,	5 00	
Lard, per pound, . . .	14	12			

There has been a change in the price of groceries and provisions—about two per cent. on the whole. No change in rent.

I have been employed in England as a miner. The difference is slightly in favor of this country so far as food and clothing go. England has the advantage in social enjoyments. There is more leisure time for culture, and better facilities for study. Libraries and reading-rooms are common.

---

1. 1877. Beamer, Glen Riddle, Delaware county, Pa.
2. Married.
6. $1 87½.
7. The fifteenth of every month.
9. Lost fifty-four days, not counting holidays. Mill running short time.
10. Two days.
11. My wife being sick for several months, it cost me about $60 00.
12. Twelve days' strike of boys.
13. The boys in the spinning-room for more pay, but failed.
14. $6 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 90		Lard, per pound, . .	$0 09	
Cornmeal, per pound,	3		Cheese, per pound, . .	14	
Oatmeal, per pound, .	6		Cod-fish, salt, per pound	5	
Rice, per pound, . . .	10		Mackerel, per pound, .	16	
Beans, per quart, . .	10		Ham, per pound, . . .	12	
Potatoes, per bushel, .	80		Soap, per pound, . . .	8	
Cabbage, per head, .	10		Starch, per pound, . .	6	
Pork, per pound, . .	12		Boots, per pair, . . .	3 50	
Sausage, per pound, .	12		Shoes, per pair, . . .	2 50	
Beef, per pound, .	16		Coal, per ton, ...	6 00	
Lamb or mutton, per lb.	16		Blankets, per pair, . .	6 00	
Veal, per pound, . .	14		Sheetings, per yard, .	10	
Tea, per pound, . . .	60		Flannels, per yard, .	30	
Coffee, per pound, . .	20		Calicoes, per yard, . .	5	
Milk, per quart, . .	8		Lawns, per yard, . .	6	
Molasses, per quart, .	10		Toweling, per yard, . .	6	
Sugar, per pound, . .	6		Medicine.*		
Butter, per pound, . .	32		Churches, charities, &c.,	12 00	
Eggs, per dozen, . . .	35				

*Doctor finds his own.

It costs me about $30 00 per month to keep my family.

---

1. 1878. Bricklayer, Thurlow, Delaware county, Pa.
2. Married.
3. Three children; oldest four and one half years old.
4. None.
5. None.
6. $3 50.
7. I am paid weekly.
8. It has been the same for two years.
9. About four months.
10. None.
11. The average is about $20 00.
12. None.
13. None.
14. $9 00.

Price paid and the average yearly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, perbarrel, . .	$6 50	3	Eggs, per dozen. . . .	$0 08	own chk'ns.
Cornmeal, per pound,	2	100	Lard, per pound, . .	8½	70
Rice, per pound, . . .	8	5	Cheese, per pound, .	15	18
Beans, per quart, . .	12	60	Cod-fish, salt, per lb., .	8	10
Potatoes, per bushel, .	50	25	Mackerel, per pound, .	8	50
Cabbage, per head, . .	5	50	Soap, per pound, . .	7	50
Pork, per pound, . .	10	200	Starch, per pound, . .	8	18
Sausage, per pound, .	10	25	Boots, per pair, . . .	7 00	1
Beef, per pound, . . .	12	200	Shoes per pair, ...	1 75	10
Veal, per pound, . . .	12	50	Coal, per ton, . . .	4 75	5
Tea, per pound, . .	65	1	Flannels per yard, .	50	7
Coffee, per pound, . .	22	50	Calicoes, per yard, . .	8	30
Milk, per quart, . . .	7	52	Toweling, per yard, .	12	15
Sugar, per pound, . .	7	200	Churches, charities, &c.,	6 00	
Butter, per pound, . .	30	104			

Has there been any change in rent or in the price of groceries, provisions, clothing, etc., during the past year?

A. My rent is one dollar less this year than it was last. Meat is the only thing that is cheaper.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. I am a native of this State ; was born in Paradise, Lancaster county, Pa., 1843. In filling up the blank, have given a yearly estimate. Two years and a half ago, I was a puddler in the employ of the Chester Rolling Mill Company, but left it to accept a position at my present occupation, as it pays better. There puddling men for a full week of six days, can only earn $15 50, and the helpers $1 50 a day, and they are only working about half time.

---

1. 1884. Car-builder and carpenter, Renovo.
2. Married.
3. Five children.
4. None.
5. Three.
6. $1 76.
7. Monthly.
8. The works not running full time caused a decrease of about $120 during year.
9. Twenty.
10. Two.
11. $50 00.
12. None.
14. $11 50.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$0 80		Eggs, per dozen, . . .	$0 32	
Cornmeal, per pound,	5		Lard, per pound, . . .	12	
Oatmeal, per pound, .	7		Cheese, per pound, .	18	
Rice, per pound, . . .	10		Mackerel, per pound, .	12	
Beans per quart, . .	12		Ham, per pound, . . .	13	
Potatoes, per bushel, .	70		Soap per pound, . . .	9	
Cabbage, per head, . .	12		Starch per pound, . .	10	
Pork per pound, . . .	14		Shoes, per pair, . . .	2 00	
Sausage per pound,	18		Coal per ton, ...	5 75	
Beef per pound, . .	17		Blankets per pair, . .	5 00	
Lamb or mutton, per lb.	16		Sheetings per yard, .	20	
Veal, per pound, . . .	18		Flannels, per yard, . .	40	
Tea per pound, . . .	80		Calicoes per yard, . .	10	
Coffee, per pound, . .	18		Lawns per yard, . .	10	
Milk, per quart, . .	10		Toweling, per yard, .	20	
Molasses per quart, .	19		Medicine, ...	2 50	
Sugar, per pound, . .	10		School books, ...	1 00	
Butter per pound, . .	32				

Has there been any change in rent or in the price of groceries, provisions, clothing, etc., during the year?

A. Rent raised fifty cents per month; other changes of little note.

---

1. 1885. Car-builder, Renovo, Pa.
2. Married.
3. Two.
4. None.
5. None.
6. $1 76—eight hours.
7. Every thirty days.
9. Twenty-two.
10. Three.
11. $3 00.
12. None.
14. $10 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$1 75	1	Cheese, per pound, . .	$0 15	1
Cornmeal, per pound,	2	10	Cod-fish, salt, per lb., .	10	½
Oatmeal, per pound, .	6		Mackerel, per pound, .	8	2
Rice, per pound, .	10	20	Ham, per pound, . . .	12	13
Beans per quart,	12	1	Soap, per pound, . .	8	6
Potatoes, per bushel, .	60	2	Starch, per pound, . .	9	1
Cabbage, per head, .	10	2	Boots, per pair, . . .	3 00	
Pork, per pound,	12		Shoes, per pair, ...	1 50	$10 00 per yr
Sausage, per pound, .	16	1¼	Coal, per ton, ...	5 75	23 00 "
Beef, per pound,	14	25	Blankets, per pair, . .	4 00	4 00 "
Lamb or mutton, per lb.	13		Sheetings, per yard, .	25	1 38 "
Veal, per pound, .	15	1¼	Flannels, per yard,	10	
Tea, per pound, .	75	1/16	Knit under-clothing, per suit, . . .	1 25	2 50 "
Coffee, per pound, . .	19	4	Calicoes, per yard, . .	8	24
Milk, per quart, . . .	10	10	Lawns, per yard, . . .	13	
Molasses, per quart, .	20	2	Toweling, ...	12	1 44 "
Sugar, per pound, . .	7	10	Medicine, ...	. . .	2 00 "
Butter, per pound, . .	27	6	Churches, charities, &c.,	. .	1 00 "
Eggs, per dozen, . . .	25	3	Clothing, ...	. . .	20 00 "
Canned fruit, per can,	17	4	Wood, ...	. .	12 00 "
Pickles, per dozen, . .	12	2	Hosiery, buttons, pins, thread, &c., ...	. . .	15 00 "
Oil, per gal., . . .	20	1			
Lard, per pound, . . .	13	4			

1. 1886. Laborer, Summit Hill, Carbon county, Pa.
2. Single. Living with mother; she pays rent.
6. $1 67.
7. Once a month.
9. About fifty, from over-production.
10. Eight.
11. $3 00.
14. $4 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 68¾	4	Butter, per pound, . .	$0 30	12
Cornmeal, per pound,	3	100	Eggs, per dozen, . . .	30	4
Oatmeal, per pound, .	5	25	Lard, per pound, . .	12	10
Rice, per pound, . . .	6	10	Cheese, per pound, . .	14	3
Beans, per quart, .	10	2	Cod-fish, salt, per lb., .	7	20
Potatoes, per bushel, .	80	3	Mackerel, per pound, .	16	
Cabbage, per head, . .	5	20	Soap, per pound, . .	5	10
Pork, per pound, . .	16	12	Starch, per pound, . .	10	1
Sausage, per pound, .	16	3	Boots, per pair, . . .	3 00	
Beef, per pound, . . .	16	8	Shoes per pair, . . .	2 00	1
Lamb or mutton, per lb.	12		Coal, per ton, . . .	3 00	1
Veal, per pound, . . .	10		Blankets, per pair, . .	7 00	
Tea, per pound, . .	50	1	Sheetings, per yard, .	12	
Coffee, per pound, . .	28	3	Flannels, per yard, . .	28	
Milk, per quart, . .	8	10	Calicoes, per yard, . .	7	
Molasses, per quart, .	15	8	Toweling, per yard, .	10	2
Sugar, per pound, . .	8	20	Churches, charities, &c.,	1 50	

Many other men, working for the same wages for the last year, have lost far more time than I through sickness, accidents, and other causes. These are the highest wages paid a laborer underground, men doing contract work being paid per yard.

---

1. 1889. Miner, Lansford, Pa.
2. Married.
3. Nine children—eleven, all told.
4. None.
5. Five.
6. Contract work, about $3 00; day's work, $1 94.
7. Monthly.
8. Same wages all the year through.
9. Seventy-four.
10. Three.
11. $12 00 to $15 00.
12. None.
13. None.
14. Have my own house. Average, about $4 80 to $6 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 68¾	9	Butter, per pound,	$0 22	16 to 18
Cornmeal, per pound,	3	5	Eggs, per dozen,	18	8 to 10
Oatmeal, per pound,	6		Lard, per pound,	11	8 to 10
Rice, per pound,	9	4	Cheese, per pound,	14	4 to 5
Beans, per quart,	8	2	Ham, per pound,	12	
Potatoes, per bushel,	65	2½ to 3	Soap, per pound,	7	12 to 20
Cabbage, per head,	5	8 to 10	Starch, per pound,	8½	3
Pork, per pound,	12	8 to 9	Boots, per pair,	4 00	$10 to $12
Sausage, per pound,	16	2 to 3	Shoes, per pair,	1 50	
Beef, per pound,	12	45 to 50	Coal, per ton,	*2 25	1
Lamb or mutton per lb.	8		Blankets, per pair,	2 75	
Veal, per pound,	13	5 to 6	Sheetings, per yard,	9	
Tea, per pound,	60	1½	Flannels, per yard,	35	
Coffee, per pound,	18	4	Calicoes, per yard,	7	
Milk, per quart,	6	12 to 15	Lawns, per yard,	6	
Molasses, per quart,	17	1½ to 2	Toweling, per yard,	12	
Sugar, per pound,	6	25 to 30	School-books,	1 50	

* Hauling 50 cents extra.

Has there been any change in rent, or in the price of groceries, provisions, clothing, &c., during the past year?

A. Clothing is somewhat cheaper; no change in groceries or provisions to my knowledge.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. Was born in America—State of Pennsylvania.

1. 1888. Miner and merchant, Summit Hill, Carbon county.
2. Married.
3. One boy.
6. $2 50.
7. Once a month.
8. Reduced 10 per cent.
9. About fifty days.
10. Fifteen to twenty.
11. $10 00.
14. I own my own house; rent from $5 00 to $10 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$0 69		Eggs, per dozen,	$0 30	
Cornmeal, per pound,	5		Lard, per pound,	12	
Oatmeal, per pound,	5		Cheese, per pound,	14	
Rice, per pound,	9		Cod-fish, salt, per lb.,	10	
Beans, per quart,	10		Mackerel, per pound,	12–18	
Potatoes, per bushel,	80–90		Ham, per pound,	12½	
Cabbage, per head,	5–10		Soap, per pound,	8	
Pork, per pound,	14		Starch, per pound,	12	
Sausage, per pound,	16		Boots, per pair,	4 00	
Beef, per pound,	14		Shoes, per pair,	2 00	
Lamb or mutton, per lb.,	14		Coal, per ton,	3 25	
Veal, per pound,	14		Blankets, per pair,	5 00	
Tea, per pound,	25–50		Sheetings, per yard,	35	
Coffee, per pound,	18		Flannels, per yard,	20–35	
Milk, per quart,	7		Calicoes, per yard,	6–10	
Molasses, per quart,	20		Lawns, per yard,	6–10	
Sugar, per pound,	7–8		Toweling, per yard,	10–14	
Butter, per pound,	28		Churches, charities, &c.,	1 00	per month.

1. 1891. Miner, Lansford, Pa.
2. Married.
3. Seven.
4. All above that age.
5. One.
6. $2 00.
7. Once every month.
9. Mines not working; about one third time lost.
11. $5 00 or $6 00.
14. $7 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption. *		Cost.	Consumption.
Flour, per sack of 98 lbs.,	$2 75		Butter, per pound, . .	$0 32	
Cornmeal, per pound, .	3		Eggs, per dozen, . . .	28	
Oatmeal, per pound, .	6		Lard, per pound, . .	12½	
Rice, per pound, . . .	8		Cheese, per pound, .	15	
Beans, per quart, .	12		Ham, per pound, . .	12½	
Potatoes, per bushel, .	75		Soap, per pound, . .	5	
Cabbage, per head, . .	6		Starch, per pound, . .	8½	
Pork, per pound, . .	15		Boots, per pair, . . .	4 00	
Sausage, per pound, .	16		Shoes, per pair, . . .	2 50	
Beef, per pound, .	16		Coal, per ton, ...	2 75	
Lamb or mutton, per lb.,	15		Blankets, per pair, . .	7 00	
Veal, per pound, . .	16		Sheetings, per yard, .	10	
Tea, per pound, . . .	60		Flannels, per yard,	45	
Coffee, per pound, . .	18		Calicoes, per yard, . .	8	
Milk, per quart,	8		Lawns, per yard, . .	12	
Molasses, per quart, . .	15		Toweling, per yard, .	12	
Sugar, per pound, . .	8		Churches, charities &c.,	12 00	per year.

*Average consumption, about $40 00 per month.

Has there been any change in rent, or in the price of groceries, provisions, clothing, &c., during the past year?

A. Not of any account.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. Employed in Wales (Great Britain) as a miner. Comparing conditions in both Wales and America, I would decide in favor of America.

---

1. 1897. Laborer, Audenreid, Carbon county, Pa.
2. Married.
3. Six; myself and wife make eight.
5. Two.
6. $1 50.
7. Once a month, if there is anything due.
8. Reduced 10 per cent. per week.
9. Work averages about three-quarters time.
11. The company deducts seventy-five cents per month from each employé for medicine and medical attendance.
14. $6 00 per month for rent and coal.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per barrel,	$6 00	*17	Lard, per pound,	$0 12½	
Cornmeal, per pound,	4	50	Cheese, per pound,	14	
Oatmeal, per pound,	8	100	Cod-fish salt, per lb.,	10	
Rice, per pound,	10	50	Mackerel, per pound,	18	
Potatoes, per bushel,	75	1	Ham, per pound,	12½	
Cabbage, per head,	6	30	Soap, per pound,	10	
Pork, per pound,	16		Starch, per pound,	10	
Tea, per pound,	60		Boots, per pair,	4 00	
Coffee, per pound,	20		Shoes, per pair,	3 00	
Milk, per quart,	10		Blankets, per pair,	7 00	
Molasses, per quart,	22		Sheetings, per yard,	35	
Sugar, per pound,	9		Flannels, per yard,	25	
Butter, per pound,	25		Calicoes, per yard,	8	
Eggs, per dozen,	30		Toweling, per yard,	12	

* We consume as much of the above as we can afford for our wages.

Has there been any change in rents, or in the price of groceries, provisions, &c., during the past year?

A. No change in rents these seventeen years, and very little in groceries this year.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. It is twenty-three years since I left Europe.

The foregoing are prices here in company stores, where nearly all the employés are compelled to deal. The reason I said, "If there is anything due," is because the company deducts the store bill, rent, doctor, coal, &c., from the men. It is seldom a married man has any pay to get, especially an outside laborer, whose wages range from ninety cents to $1 10 per day. I would recommend that the Legislature abolish all company stores. It would be a great blessing to the workingmen in the coal fields.

---

1. 1898. A miner. St. Mary's, Elk county, Pa.
2. Married.
3. Eleven.
4. None.
5. Four.
6. $1 50.
7. Once a month.
8. The same.
9. Worked about twenty-one days a month the year round.
10. Ten days.
11. $13 00.
12. None.
14. $2 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$0 82	1 bbl.	Eggs, per dozen, . . .	$0 30	
Cornmeal, per pound,	2	25	Lard, per pound, . .	12	20
Oatmeal, per pound, .	7		Cheese, per pound,	16	10
Rice, per pound, . . .	10		Cod-fish, salt, per pound,	10	
Beans, per quart, . . .	15		Mackerel, per pound, .	12	
Potatoes, per bushel, .	65	5	Ham, per pound, . .	14	15
Cabbage, per head, . .	8	25	Soap, per pound, . . .	10	10
Pork, per pound, . .	10	40	Starch, per pound, . .	10	1
Sausage, per pound, .	12	20	Boots, per pair, ...		
Beef, per pound. . . .	10		Shoes, per pair, ...	2 00	4
Lamb or mutton, per lb.,	9		Coal, per ton, . . .	2 00	2
Veal, per pound, . . .	14		Blankets, per pair, .	6 00	
Tea, per pound, . . .	60	4	Sheetings, per yard, .	10	5
Coffee, per pound, . .	18	2	Flannels, per yard, . .	40	5
Milk, per quart, . .	5	30	Calicoes, per yard. .	8	10
Molasses, per gallon, .	60		Toweling, per yard, .	15	2
Sugar, per pound, . .	9	300	School-books, for year,	4 00	
Butter, per pound, . .	28	28	Churches, charities, &c.,	7 00	

Has there been any change in rent or in the price of groceries, provisions, clothing, &c., during the past year?

A. If there was any change, it was so small as not to be noticeable.

We have a company store here, and it takes every cent a man can earn to keep his family.

---

1. 1899. Laborer, St. Mary's, Elk county, Pa.
2. Married.
3. Ten.
4. None.
5. Six.
6. Ninety-nine cents.
7. Once a month.
8. Decreased eleven cents per day, or sixty-six cents per week.
9. Twenty days.
10. Thirty-six days.
11. $16 85.
12. None.
14. $3 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$1 57	5	Lard, per pound, . . .	$0 10	12
Cornmeal, per pound,	1½	50	Cheese, per pound, .	15	5
Oatmeal, per pound, .	5	20	Cod-fish, salt, per lb., .	10	12
Rice, per pound,	10	10	Mackerel, per pound, .	10	6
Beans, per quart,	10	6	Ham, per pound, . . .	12½	12
Potatoes, per bushel, .	50	4	Soap, per pound, .	6	6
Cabbage, per head, .	6	10	Starch, per pound,	12½	½
Pork, per pound,	10	20	Boots, per pair, . . .	2 00	1
Sausage, per pound, .	12½	5	Shoes, per pair, . . .	2 00	
Beef, per pound,	12½	70	Coal, per ton,	1 85	10 cwt.
Lamb or mutton, per lb.,	12½		Sheetings, per yard, .	10	5
Tea, per pound,	60	2	Flannels, per yard,	40	6
Coffee, per pound, .	17	4	Calicoes, per yard, .	8	10
Milk, per quart, .	6	30	Lawns, per yard, . .	8	
Molasses, per quart, .	15	3	Toweling, per yard, . .	10	4
Sugar, per pound,	8	25	Medicine, ...	16 85	
Butter, per pound, .	25	20	School-books,	1 00	
Eggs, per dozen, .	30	3	Churches, charities, &c.,	12 00	

Has there been any change in rent or in the price of groceries, provisions, clothing, &c., during the past year?

A. Flour reduced four cents on the sack of twenty-four pounds; meat that was fifteen cents, now twelve and a half cents; clothing reduced fifteen to twenty per cent.

The statement enclosed could not be lived up to were it not that adjoining the house I occupy there is a good-sized piece of ground, and, by my cultivating it, I raise a great many vegetables. I also keep a cow, from which I have my own milk and butter.

---

1. 1906. Machinist, Erie, Pa.
2. Married.
3. Three.
6. Regular day pay, $3 50; average, about $3 00.
7. Weekly.
9. About six weeks per year for short time, dullness, inventory, &c.
10. About three or four.
11. $50 00 or $75 00.
14. $12 50 per month.

My opinion on "hours and wages" is that should the hours be reduced, and wages in proportion, the ordinary mechanic and the unskilled laborer would have to scratch like Sam Hill to make a living. I would favor monthly payment of wages. I think that the condition of unskilled labor is very poor—not much better than in Europe. Skilled labor is somewhat more elevated than in European countries, but I don't think the higher grades of mechanics are paid in proportion to the skill required. There

is not, as a general thing, any discrimination made between the fine-haired fellow and the coarse-grained one. I have charge of a small machine-shop, employing, on an average, twelve or fourteen hands, but am not allowed by the proprietors to pay over a certain amount, no matter how worthy the man or men may be of it. Such things should be left to the man in charge. If he is practical, he will do what is right to employer and employed.

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1. 1809. Heater, Pittsburgh, Pa.
2. Married.
3. Four children.
6. $5 75.
7. Every two weeks.
8. In June, 1885, my wages were reduced 10 per cent.
9. Since the strike of 1882, which lasted four months, the mill where I am employed has not averaged more than two thirds time.
10. To the best of my knowledge, I have lost one week.
11. About $40 00.
12. Two weeks.
13. Against a reduction of 10 per cent.; in favor of manufacturers.
14. None; but plenty for taxes and interest.

---

1. 1911. Carpenter, Erie, Pa.
2. Married.
3. Four.
4. None.
5. None.
6. $1 75.
7. Every week.
8. $1 50 per week reduction.
9. Thirty-five.
10. None.
11. $20 00.
12. None.
13. None.
14. $12 66.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 72½	3	Eggs, per dozen, . . .	$0 25	2
Rice, per pound, . .	8	3	Lard, per pound, . .	10	6½
Potatoes, per bushel, .	70	1	Cheese, per pound, . .	14	1
Cabbage, per head, . .	7	2	Soap per pound, . . .	6	6
Sausage, per pound, .	10	5	Shoes, per pair, ...	2 45	10
Beef, per pound, . .	12½	34	Coal, per ton, ...	5 00	5
Lamb or mutton, per lb.	12½	6	Wood per cord, . .	2 00	1
Tea per pound, . . .	60	½	Flannels, per yard, . .	35	10
Coffee, per pound, . .	17	2	Calicoes, per yard, . .	5	36
Milk, per quart, . .	7	18	Lawns, per yard, . .	4	12
Molasses, per quart, .	20	2	Toweling, per yard, . .	10	6
Sugar, per pound, . .	8	13	Churches, charities, &c.,	30 00	
Butter, per pound, . .	25	8			

Add to the above for insurance and lodges per month, $3 50, and during the year past paid about $125 00 for clothing not mentioned above.

---

1. 1913. Locomotive engineer, Erie, Pa.
2. Married.
3. Four children, three are married.
4. None.
5. None.
6. $2 70.
7. Once every month.
8. Wages stationary.
9. Thirty days.
10. None.
11. None.
12. None.
14. Own my house.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 70	3	Lard, per pound, . .	$0 08	15
Rice, per pound, . . .	10	4	Cheese, per pound, . .	12	8
Beans per quart. . . .	8	2	Cod-fish, salt, per pound	10	4
Potatoes, per bushel. .	70	1	Ham, per pound, . .	12	10
Cabbage, per head, . .	5	6	Soap, per pound, . .	6	8
Sausage, per pound, .	8	5	Starch, per pound, . .	6	1
Beef, per pound, . .	13	15	Boots, per pair.	4 50	6
Lamb or mutton, per lb.	10	10	Wood, per cord, . . .	1 60	27
Veal, per pound, . . .	7	5	Coal, per ton, . . .	5 00	8
Tea, per pound, . . .	. . .	1½	Blankets, per pair, . .	3 00	3
Coffee, per pound, . .	. . .	4	Sheetings, per yard, .	8	40
Milk, per quart, . .	. .	20	Flannels, per yard, . .	40	10
Molasses, per quart, .	. . .	4	Calicoes per yard. . .	7	20
Sugar, per pound, . .	. . .	20	Toweling, per yard,	25	6
Butter, per pound, . .	. .	25	Churches, charities, &c.,	30 00	
Eggs, per dozen, . . .	. . .	4			

Born in England. Shipped on an American vessel at twelve years of age. Sailed on the Atlantic seven years, and on the lakes three seasons. Quit the water and commenced railroading in the year 1856, and continued ever since.

---

1. 1915. Machinist, Erie, Pa.
2. Married.
3. Four.
4. None.
5. None ; my baby is past twenty-one years.
6. $2 50.
7. Every week.
8. No; my wages are the same during the year past.
9. I think I have averaged ten hours a day during the year.
10. I think not any.
11. About $25 00.
12. None; we have no strikes or lock-outs in the E. C. I. works.
13. There is no cause for any strikes under my employers.
14. None ; I am my own landlord.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$0 70	2	Butter,	$0 25	8
Oatmeal,	4	6	Eggs,	25	4
Rice,		1	Lard,	12	10
Potatoes,	75	2	Cheese,	13	2
Cabbage,	6	8	Codfish, salt,	8	3
Beef and pork,	12½		Soap,	7	10
Lamb or mutton,	12½		Shoes and rubbers,	*	12
Tea,	50	4	Fuel,	4 00	
Coffee,	27	2	School books,		None.
Milk,	6	45	Churches, charities, &c.,	2 50	
Sugar,	6	50			

* Boots and shoes, rubbers, overshoes, and repairs, $3 00 a month.

I have, to the best of my ability, filled out the blanks, but no doubt you will find them very imperfect. You see I have made no estimate for clothing; those things that are mentioned in the blanks being bought by my housekeeper in such quantities that it would be hard to make an estimate of the monthly cost of them; blankets, clothing, coal-oil, light, &c. Fifty dollars a month is a very close estimate of the cost of my family for everything entering into the consumption, house-rent not included. If I was paying rent for the house I live in it would cost from eight to ten dollars a month, which would make the cost of living for my family about sixty dollars a month. If there has been any change in the price of groceries, provisions, rent, etc., during the last year in Erie, it is so little that it is not noticeable.

---

1. 1921. Miner, Dudley, Huntingdon county, Pa.
2. Married.
3. Six children.
4. One.
5. Not any.
6. $1 25.
7. Once a month.
8. Wages have not been altered during the past year.
9. Thirty days, to the best of my knowledge.
10. Forty days.
11. $1 50 for medicine.
12. None.
13. None.
14. I live in my own house; it would rent for $4 00 a month.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per barrel,	$6 00		Eggs, per dozen, . . .	$0 30	
Cornmeal, per pound,	2½		Lard, per pound, . .	13	
Oatmeal, per pound, .	6		Cheese, per pound, . .	18	
Rice, per pound, . . .	10		Soap, per pound, . .	9	
Potatoes, per bushel, .	50		Starch, per pound, . .	12	
Cabbage, per head, . .	7		Boots, per pair, .	4 00	
Pork, per pound, . . .	10		Shoes, per pair, ...	1 50	
Beef, per pound, . . .	7		Coal, per ton, ...	1 00	
Tea, per pound, . . .	50		Blankets, per pair, . .	7 00	
Coffee, per pound, . .	20		Sheetings, per yard, .	10	
Molasses, per quart, .	20		Flannels, per yard, . .	30	
Sugar, per pound, . .	8		Calicoes, per yard, . .	10	
Butter, per pound, . .	25				

I consider it takes $35 00 per month to support my family.

Has there been any change in rent or in the price of groceries, provisions, clothing, etc., during the year past?

A. There has been a small reduction.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. Employed at wage labor in the county of Durham, England, as a miner. This seems to me a hard question to answer. We worked six hours per day in England ; here we work from ten to twelve hours per day. I could make four shillings per day in England. I have been in this country six years. When I first came here, miners received sixty cents per ton ; now they receive forty cents per ton. In proportion, provisions, etc., have not been reduced.

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1. 1923. Miner, Robertsdale, Huntingdon county, Pa.
2. Married.
3. Eight.
4. None.
5. Three.
6. $1 50.
7. Once every month.
9. One hundred.
11. $12 00.
14. $5 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.*		Cost.	Consumption.
Flour,	$0 75	10	Lard,	$0 10	15
Cornmeal,		1	Ham,	15	
Rice,	10	4	Soap,	8	12
Potatoes,	40	5	Starch,	8	2
Cabbage,	8	12	Boots,	4 00	2
Pork,	10	20	Shoes,	2 00	2
Sausage,	10	50	Coal,	1 00	
Beef,	10	50	Sheetings,	10	5
Tea,	60	3	Flannels,	40	10
Coffee,	18	4	Calicoes,	8	20
Milk,	7	2	Toweling,	15	4
Molasses,	10	116	Medicine,	50	
Sugar,	8	36	School-books,	2 50	
Butter,	20	16	Churches, charities, &c.,	1 00	
Eggs,	10	10			

*Annual consumption.

1. 1933. Puddler, Williamsport.
2. Married.
3. Eight in family.
4. None.
5. Three.
6. $2 50.
7. Once a month.
8. Neither.
9. Seventy-three.
10. Six.
11. $12 00.
12. None.
14. $10 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 70	4	Lard, per pound	$0 12	10
Cornmeal, per pound,	3	10	Cheese, per pound,	16	5
Oatmeal, per pound,	5	5	Ham, per pound,	14	30
Rice, per pound,	10	5	Soap per pound,	8	8
Beans, per quart,	10	4	Starch, per pound,	10	3
Potatoes, per bushel,	50	4	Shoes, per pair,	3 00	2
Cabbage, per head,	8	6	Coal, per ton,	4 50	1
Pork, per pound,	15	6	Sheetings, per yard,	10	5
Beef, per pound,	12	16	Flannel, per yard,	35	3
Tea per pound,	60	1	Calicoes per yard,	8	7
Coffee, per pound,	18	4	Lawns, per yard,	10	1
Milk, per quart,	6	28	Toweling, per yard,	10	1
Molasses, per quart,	12	4	Medicine,	25	
Sugar, per pound,	7	15	School-books,	25	
Butter, per pound,	20	12	Churches, charities, &c.,	25	
Eggs, per dozen,	15	8			

Has there been any change in rent or in the price of groceries, provisons, clothing, &c., during the past year?

A. No change in rent, groceries, or provisions. Clothing is cheaper.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

I have worked in England and Wales many years puddling. My wages were about one third lower in that country, but my condition compared very favorably with my present. I attribute it to cheap rent and fuel, and the advantage of weekly pay.

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1. 1934. Iron-worker, Lycoming county.
2. Married.
3. Four children.
5. Two.
6. $4 50.
7. Monthly.
8. They have not.
9. Two months.
10. One month.
11. $8 00.
14. None; I own my house.

Price paid and the average yearly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$0 70	52	Butter, per pound, . .	$0 25	
Cornmeal, per sack, .	40	4	Eggs, per dozen, . .	35	
Rice, per pound,	10	10	Lard, per pound, . .	10	150
Beans, per quart, . . .	10	20	Cheese, per pound,	14	
Potatoes, per bushel, .	50	25	Mackerel, per pound,	10	1 barrel.
Cabbage, per head,	5	150	Ham, per pound, . .	12	
Pork, per pound, . .	6		Soap, per pound, . .	6	
Sausage, per pound, .	14		Starch, per pound, . .	10	
Beef, per pound, . .	7		Boots, per pair, . . .	3 50	
Veal, per pound, . . .	14		Shoes, per pair, . .	3 00	
Tea, per pound, . .	80	5	Coal, per ton, . . .	4 30	10
Coffee, per pound, .	20	50	Blankets, per pair, . .	2 00	
Milk, per quart, . . .	6		Calicoes, per yard, .	6	
Molasses, per quart, . .	20		Toweling, per yard, .	6	
Sugar, per pound, .	7				

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1. 1999. Miner, Irwin Station, Westmoreland county, Pa.
2. Married.
3. Four children—six in family.

5. Two.

6. About $2 00. This is above the average of miners' wages. I have a small contract in the mine. General run, $1 75.

7. Once a month—on the first Wednesday after the 8th of month.

8. Reduced 15 per cent. in the early part of 1885.

9. About sixty, including forty-two days of a strike, resisting above mentioned reduction.

10. About twelve.

11. $12 00. I pay $1 00 per month for doctor for whole family.

12. Forty-two.

13. Fifteen per cent. reduction, resulting adversely to workmen.

14. $6 00 rent, including coal. I occupy a company house.

Price paid and the average yearly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$1 60	3	Milk, per quart, . .	$0 06	80
Oatmeal, per pound, .	5	5	Molasses, per quart, .	20	96
Rice, per pound,	8	10	Sugar, per pound, . .	8¼	180
Lima beans, per pound,	8	36	Butter, per pound, . .	30	182
Potatoes, per bushel, .	60	40	Eggs, per dozen, . . .	30	100
Pork, per pound,	12	100	Lard, per pound, . .	10	80
Sausage, per pound, .	12	50	Cheese, per pound, . .	16	24
Beef, per pound, .	12	400	Ham, per pound, . . .	12	192
Lamb or mutton, per lb.,	12½		Soap, per pound, .	4¼	120
Tea, per pound, . . .	50	12	Starch, per pound.	10	12
Coffee, per pound, . .	18	36	Churches, charities &c.,	25 00	per year.

Has there been any change in rent, or in the price of groceries, provisions, &c., during the past year?

A. The rent was reduced $1 00 per month when the wages were reduced

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. It is about twelve years since I came from England. Wages were good there at that time.

It is very desirable that we, as a class of miners, should have better wages than we are now receiving. Our work is extremely laborious. We must live good in order to keep up to our work. We ought to have 15 per cent. more, at least. We would like to receive our wages every two weeks. When one starts to work it is sometimes seven weeks before he gets any pay. We do not get pay for one month until about the middle of the next. We think eight hours ought to constitute a miner's day's work, for the work is of the hardest kind, and it is a well known fact that the air of the mines is always more or less foul.

1. 2003. Coal miner, Suterville, Westmoreland county, Pa.
2. Married.
3. Seven.
5. Two.
6. $1 20.
7. Once a month.
8. Decreased thirty cents per day.
9. One hundred and twenty—eighty for the want of trade.
11. $16 00.
12. Forty days, on account of a strike.
13. Resisting a reduction of one half cent per bushel; lost.
14. $5 00 per month.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$0 75	56	Lard, per pound, . .	$0 12	3
Rice, per pound, . .	8	3	Cheese, per pound, . .	13	4
Potatoes, per bushel, .	60	1½	Soap, per pound, . . .	8	4
Cabbage, per head, . .	5	1	Starch, per pound, . .	10	1
Pork, per pound, . . .	14	6	Boots, per pair, yearly,	1 50	6
Beef, per pound,	15	20	Shoes, " "	1 40	2
Lamb or mutton, per lb.,	12	8	Coal, per ton, "	2 00	8
Tea, per pound, . . .	50	1	Sheetings per yard, .	10	2
Coffee, per pound,	16	4	Flannels, per yard, . .	25	2
Milk, per quart, . . .	8	30	Calicoes, per yard, . .	7	5
Molasses, per quart, .	18	4	Toweling, per yard, .	10	1
Sugar, per pound, . .	8	16	Medicine, annually, .	4 00	
Butter, per pound, . .	30	9	School-books, annually	50	
Eggs, per dozen, . . .	22	½	Churches, charities, &c.,	9 00	annually.

Has there been any change in rent, or in the price of groceries, provisions, clothing, &c., during the year?

A. Rent reduced 10 per cent. Groceries slightly reduced.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. I worked in Scotland, from youth up to my eighteenth year. Cannot say much of importance in regard to comparison, as my situation in life has changed greatly since, but would say that I have never experienced such uneasiness in my life as at present in trying to procure the necessaries of life.

1. 1940. Coal miner, Hazzard, Mercer county, Pa.
2. Married.
3. Three.
4. One.
5. None.
6. $1 03½.
7. Monthly.
8. Decrease per day, 10 cents.
9. Sixty days.
10. Not any; had no time to get sick.
11. About $5 00.
12. Thirty days.
13. Opposing a reduction of wages of twenty cents per day.
14. $2 50.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$1 25	2	Lard, per pound, . .	$0 10	4
Rice, per pound, . . .	10	2	Cheese, per pound, . .	15	2
Beans, per quart, . . .	10	2	Ham, per pound, . .	15	6
Potatoes, per bushel, .	40	1	Soap, per pound, . . .	5	5
Pork, per pound, . . .	12½	8	Boots, per pair, . . .	2 85	3 prs per yr
Beef, per pound, . . .	7	20	Shoes, per pair, ...	1 25	6 " "
Tea, per pound, . . .	80	½	Coal, per ton, ...	1 40	1½
Coffee, per pound, . .	16	2	Sheetings, per yard, .	8	4
Milk, per quart, . . .	5	15	Flannels, per yard, . .	35	2
Sugar, per pound, . .	8	6	Calicoes, per yard, . .	8	4
Butter, per pound, . .	15	8	Toweling, per yard, .	10	1
Eggs, per dozen, . . .	15	1			

Has there been any change in rent, or in the price of groceries, provisions, clothing, &c., during the year?

A. There has been some slight changes both ways.

Please understand that I have moved my residence five times during the year of 1885, to keep myself in employment, as coal miners have to do, which has cost me, in the aggregate, $50 00 more than I earned in the same year, as work has been so scarce. If I had stopped at one place, I should not have worked half of my time.

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1. 1948. Nailer, Northumberland, Pa.
2. Married.
3. Four.
4. None.
5. Two.

6. $5 00.
7. Once a month.
8. Increase per week, $2 50.
9. Twenty-five.
10. Four.
11. $10 00.
12. None.
14. None; have my own house, which would rent for $15 00 per month.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 85	2	Sugar, per pound, . .	$0 08	15
Cornmeal, per pound,	2	12	Butter, per pound, . .	25	16
Oatmeal, per pound, .	6	5	Eggs, per dozen, . .	30	5
Potatoes, per bushel, .	40	1	Lard, per pound, . .	13	5
Cabbage, per head, . .	6	5	Soap, per pound, . .	10	5
Pork, per pound, . . .	14		Starch, per pound, . .	12	2
Sausage, per pound, .	16	6	Shoes, per pair, ...	3 00	
Beef, per pound, . . .	14	20	Coal, per ton, ...	3 40	1
Tea, per pound, . .	80	¼	Toweling, per yard, .	18	2
Coffee, per pound, . .	18	5	School-books, . . .	1 00	
Milk, per quart, . .	8	25	Churches, charities, &c.,	6 00	
Molasses, per quart, .	20				

Has there been any change in rent, or in the price of groceries, provisions, clothing, &c., during the past year?

No change in rent.

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1. 1953. Puddler, Milton, Northumberland county, Pa.
2. Married.
3. Four.
5. One.
6. $2 50.
7. Once a month.
9. Seventy.
10. Five.
11. $5 00.
12. None.
14. Own property.

Price paid and the average yearly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 75	32¾	Cheese, per pound, . .	$0 16	5
Cornmeal, per pound, . . .		20	Cod-fish, salt, per lb., .	10	10
Rice, per pound,	10	4	Mackerel, per pound, .	10	25
Beans, per quart, .	12	20	Soap, per pound, . .	8	50
Potatoes, per bushel, .	45	15	Starch, per pound, . .	10	5
Cabbage, per head,	4	150	Shoes, per pair, . . .		$20 00
Pork, per pound, . . .	5	614	Coal, per ton, . .	3 60	6
Beef, per pound, .	12	145	Blankets, per pair, . .	3 00	1
Tea, per pound, . . .	65	2	Sheetings, per yard, .	10	30
Coffee, per pound, . .	17	15	Flannels, per yard, . .	18	20
Milk, per quart,	6	50	Calicoes, per yard, . .	7	30
Molasses, per quart, .	18	6	Toweling, per yard, .	10	12
Sugar, per pound. .	7	214	School-books, .	1 00	
Butter, per pound, . .	20	120	Churches, charities, &c.,	12 00	
Eggs, per dozen, . .	18	20			

1. 1956. Miner, Shamokin, Northumberland county.
2. Married.
3. Eight.
4. None.
5. Four.
6. $1 50.
7. Once a month.
8. My wages have not been advanced or reduced.
9. Lost about three months for the want of employment.
10. None.
11. $11 50.
12. None.
14. $7 50.

Price paid and the average yearly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 80	150	Lard, per pound, . .	$0 14	5
Cornmeal, per pound,	2		Cheese, per pound,	14	4
Oatmeal, per pound, .	6		Cod-fish, salt, per pound	9	8
Rice per pound, . . .	9	3	Mackerel, per pound, .	12	
Beans, per quart.	12		Ham, per pound,	12	
Potatoes, per bushel, .	80	3	Soap, per pound. . .	8	9
Cabbage, per head. . .	2	50	Starch, per pound, . .	12	1
Pork, per pound, . .	6	50	Boots, per pair, . . .	3 50	2 pair year.
Sausage, per pound, .	12		Shoes, per pair . . .	2 00	1
Beef per pound,	12	20	Coal, per ton, . . .	2 90	1
Lamb or mutton, per lb.,	14		Blankets, per pair, . .	5 00	1 pair year.
Veal, per pound,	12		Sheetings per yard, .	9	5
Tea, per pound, . .	65	3	Flannels, per yard, . .	25	3
Coffee, per pound, . .	18	2	Calicoes, per yard, . .	8	10
Milk, per quart, . .	8	12	Lawns, per yard. . .	9	
Molasses, per quart, .	15		Toweling, per yard, .	12	3
Sugar, per pound. .	8	30	Medicine, ...	75	
Butter, per pound, . .	30	8	School-books, . . .	1 00	
Eggs, per dozen, . . .	28		Churches, charities, &c.,	1 00	

These are store prices I have given in this circular. If workmen were paid their wages every week, or twice a month, they would have money to buy in the market, and could get their provisions much cheaper. There are many articles—the necessaries of life mentioned—in this circular that the workingman cannot get at present on account of the small wages and scarcity of employment. There are about two thousand men and boys out of work in the Shamokin coal region at the present time that have nothing to live upon except what they get through charity and directors of the poor.

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1. 1957. Puddler, Northumberland.
2. Married.
3. Five children.
5. Three.
6. $2 50.
7. Once every month.
9. Twenty-five.
10. Twenty-five.
11. $20 00.
14. $7 50.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$0 75	4	Milk, per quart, . . .	$0 06	20
Oatmeal, per pound, .	6	5	Sugar, per pound. . .	8	25
Rice, per pound, . . .	10	2	Butter, per pound, .	25	9
Beans, per quart, . .	10	2	Eggs, per dozen, . .	28	3
Potatoes, per bushel, .	65	1½	Lard, per pound, . . .	11	10
Pork, per pound, . .	12	15	Ham, per pound, . . .	11	15
Sausage, per pound, .	16		Coal, per ton, . .	3 42	1
Beef, per pound, . . .	13		Blankets, per pair, . .	6 00	
Veal, per pound, . . .	12		Calicoes, per yard, . .	6	
Tea, per pound, . .	80	¼	School-books, ...	4 80	
Coffee, per pound, . .	18	1			

1. 1984. Sewing-machine agent, Tamaqua, Pa.
2. Married.
3. One child.
6. $1 50.
7. Every week.
9. Twenty.
10. Ten.
11. $30 00.
14. $8 50.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Rice, per pound,	$0 10	2	Butter, per pound,	$0 30	6
Potatoes, per bushel,	70	1½	Eggs, per dozen,	30	3
Cabbage, per head,	5	3	Lard, per pound,	10	3
Pork, per pound,	15	8	Cheese, per pound,	16	2
Sausage, per pound,	13	6	Mackerel, per pound,	10	2
Beef, per pound,	16	28	Ham, per pound,	16	5
Tea per pound,	50	1	Soap, per pound,	8	4
Coffee, per pound,	20	1	Starch, per pound,	8	1
Milk, per quart,	8	10	Coal, per ton,	3 00	1
Sugar, per pound,	8	16	Churches, charities &c.,	50	

1. 1986. Miner, Boynton, Somerset county, Pa.
2. Married.
3. Three children, wife, and self—seven in all.
4. None.
5. Three.
6. Idle at present. Daily average for 1875, about seventy-eight cents.
7. Once every month.
8. Wages reduced January 1, 1885, twelve per cent.; advanced January 20, 1885, twelve per cent.; reduced in June, thirty per cent.
9. To the best of my knowledge, about one third time.
11. $1 00 per month for medical attendance; pay extra for special cases.
12. About fifteen days.
13. Strike against second reduction, January 16, 1885; demanded twelve per cent. advance as a set-off against reduction; gained advance January 20. See question 8.
14. $4 00 per month and coal.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$0 75	5	Butter, per pound,	16-25	7
Cornmeal, per pound,	2		Eggs, per dozen,	13-25	
Oatmeal, per pound,	5	2	Lard, per pound,	10	8
Rice, per pound,	12½	4	Cheese, per pound,	12½-15	
Potatoes, per bushel,	40	1½	Ham, per pound,	12½	
Cabbage, per head,	8		Starch, per pound,	15	½
Pork, per pound,	6-8		Boots, per pair,	2 50	
Sausage, per pound,	12½		Blankets, per pair,	4 50	
Beef, per pound,	6-9		Sheetings, per yard,	10	4
Lamb or mutton, per lb.,	6		Flannels, per yard,	60	
Veal, per pound,	10		Calicoes, per yard,	8	1¼
Tea, per pound,	50	1	Toweling, per yard,	12½	
Coffee, per pound,	15	2	Medicine,	1 00	
Milk, per quart,	5		School-books and taxes,	2 00	
Molasses per quart,	14	2	Churches, charities, &c.,	2 00	
Sugar, per pound,	7-9	30			

Has there been any change in rent, or in the price of groceries, provi-visions, clothing, &c., during the past year?

A. No change in rent; groceries fluctuating.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. I worked in Scotland—mostly at mining—from a boy until I was thirty-two years of age. I came to this country five years ago, and I can say, with a clear conscience, I never was in lower circumstances than I am at present. Miners, as a rule, are piece-workers—that is, they are either paid by weight or measure, and seldom work by the day or week. Hence, I have answered question 8 according to the percentage of advances or reductions. Answer to question 6, I mean 78 cents for full time, not the actual days employed. A miner in this region (Meyersdale) can make about $1 40 a day. clear of expenses, at present rates, with very hard work. Present rates are 25 cents per ton of 2,240 pounds. Allowing a miner to dig and load six tons—which is a good day's work—would give him $1 50. His expenses would be 3 cents for smithing, 4 cents for oil, and 10 cents for powder, and to keep up wear and tear of tools, boots, and mining clothes, would make a considerable item. That would leave a miner in this place, for producing six tons, gross weight, about $1 30 clear money. Allowing the working year to have three hundred and ten days (two thirds time) at the above wages, would be $270 00 for the year. I will risk my life on the assertion that the last figures are at least 10 per cent. above the average earnings of the miners of this region, excepting one mine, viz: Tub-mill run. I will further state that I don't believe 10 per cent. of the miners were able to maintain their families and keep out of debt the past year. This (Meyersdale) region was paid 50 cents for mining in 1882. In 1885, we are paid just the one half—25 cents per ton, gross.

Our coal is sold at Baltimore at $2 70 per ton; money divided as follows:

Miner,		25 cents per ton.
Yardship,		10 cents per ton.
B. & O. R. R., freight,	$1 75	
Balance,		65 cents per ton.

The balance, of course, goes to the poor operators and their agents. This coal is quoted at Baltimore as Cumberland coal.

You can see by the above that the miner gets the lion's share for his small services! Poor capitalists and railroad monopolies have to go to the wall every time!

Now, gentlemen, your circular solicits me to "speak my mind freely," and promises not to give my name away. I have spoken my mind freely, and believe I have spoken the truth, therefore, it is immaterial to me what you do with my name.

1. 1987. Miner, Elk Lick, Somerset county, Pa.
2. Married.
3. Five.
4. One.
5. One.
6. Eighty-five cents per day.
7. Monthly.
8. Reduced thirty-six cents a day when running full time.
9. One hundred and forty-four days, chiefly for want of trade.
12. Ten days.
13. Proposed reduction from twenty-six cents per two thousand pounds to twenty-five cents per twenty-two hundred and forty pounds. Accepted the latter.
14. I am a freeholder; average rents are $5 00 per month.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$1 38	3	Lard, per pound,	12	2
Oatmeal, per pound,	8	2	Cheese, per pound,	14	10
Rice, per pound,	10	4	Ham, per pound,	12	10
Beans, per quart,	15	2	Soap, per pound,	8	5
Potatoes, per bushel,	40	6	Starch per pound,	12	1
Cabbage, per head,	10	2	Shoes, per pair,	2 50	10 pr. per yr
Pork, per pound,	10		Coal, per ton,	1 40	$\frac{3}{4}$
Sausage, per pound,	10		Sheetings, per yard,	10	$\frac{1}{2}$
Beef, per pound,	7	15	Flannels, per yard,	12	2
Lamb or mutton, per lb.,	6	7	Calicoes, per pard,	8	2
Coffee, per pound,	18	5	Lawns, per yard,	15	3
Milk, per quart,	5	$7\frac{1}{2}$	Toweling, per yard,	10	1
Molasses, per quart,	23	2	Medicine,		$3.50 per yr.
Sugar, per pound,	10	20	School-books,		40 "
Butter, per pound,	18	16	Churches, charities, &c.,		5.00 "
Eggs, per dozen,	14	4			

Has there been any change in rent, or in the price of groceries, provisions, clothing, &c., during the past year?

A. The above have all been a shade cheaper the past year than they were previously.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

I was employed at wage labor in Scotland, Great Britain, for twenty-five years, as a miner, fire-boss, mining-boss, &c., and my condition there I consider to be equal to what it has been here. If we could have steady employment, at reasonable wages, this country would be much superior to Great Britain or any other country in Europe, but the average work is one-half to two-thirds time in America, which reduces the advantage of American labor over European.

According to question six, I have given you the average wage for myself, but I have two sons working with me, aged seventeen and fourteen respectively, and I have given you the average outlay for the whole family. If you want the whole income of the family, multiply the answer to question six by two.

In the mining laws of Great Britain, the fire-boss is prohibited from allowing any workman to enter his working place if fire-damp has accumulated there, until it has been rendered safe to do so, under a penalty of six months' imprisonment. And, if any person is burned by the negligence of the fire-boss, they may sue the company for damages, under the employers' liability act. The fire-boss must record, in a book kept for the purpose, the state in which he finds the mine each morning. The British and Pennsylvania mining laws are much the same, with the exception of these clauses in regard to fire-bosses, and I think the Pennsylvania law is not strict enough with the fire-bosses in regard to the preservation of life from fire-damp.

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1. 1988. Miner, Bernice, Sullivan county, Pa.
2. Married.
3. Four.
5. One.
6. $2 00.
7. Once a month.
9. One hundred and twelve.
10. None.
11. $12 00.
14. $2 50.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$1 00	3½	Butter, per pound, . .	$0 20	10
Cornmeal, per pound,	2½		Eggs, per dozen. . .	16	2
Oatmeal, per pound, .	6	1	Lard, per pound, . .	16	5
Rice, per pound, .	10	1	Cheese, per pound, . .	16	
Beans, per quart,	10		Ham, per pound, . .	15	8
Potatoes, per bushel, .	60	1½	Soap, per pound. .	6½	7
Pork, per pound, . .	9	8	Starch, per pound, . .	10	½
Sausage, per pound, .	16	2	Boots, per pair, . . .	4 00	
Beef, per pound, .	9	20	Shoes, per pair, ...	2 50	
Lamb or mutton, per lb.	12		Coal, per ton, ...	2 25	1
Tea, per pound, . .	60	1½	Blankets, per pair, . .	4 00	
Coffee, per pound, .	20	1	Flannels, per yard, . .	40	
Milk, per quart, . .	6	15	Calicoes, per yard, . .	8	
Sugar, per pound, . .	8½	20	Toweling, per yard, . .	12½	

I was born in the county of Warwick, England, in the year 1856; followed mining since I was old enough to do so. I worked most of my time while in England in the county of Derby, and, after becoming of age, averaged about four shillings per day for the days that I worked, which was very few. My condition there, strictly speaking, was not quite so good as it has been in this country, but very nearly so. One great drawback here is that a man is obliged to deal, or trade, in the store or get his discharge.

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1. 1989. Miner, Morris Run, Tioga county, Pa.
2. Married.
3. Five.
4. None.
5. Three.
6. $1 80.
7. Once a month.
8. Reduced ten per cent.
9. From no demand for coal, lost forty days.
10. One day.
11. Seventy-five cents a month.
12. None.
13. None.
14. $4 05.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$1 62	2	Eggs, per dozen, . . .	$0 20	2
Cornmeal, per pound,	1¾	2	Lard, per pound, . . .	12½	8
Oatmeal, per pound, .	6	2	Cheese, per pound, . .	14	6
Rice, per pound,	10	3	Cod-fish, salt, per lb., .	10	
Beans, per quart, . .	20	1	Mackerel, per pound, .	12½	
Potatoes, per bushel, .	60	2	Ham, per pound, . . .	16	5
Cabbage, per head, .	10	2	Soap, per pound, . .	10	9
Pork, per pound, . .	12½	12	Starch, per pound, . .	10	1
Sausage, per pound, .	12½	2	Boots, per pair, ...	5 00	
Beef, per pound, . . .	10	15	Shoes, per pair, ...	2 00	
Lamb or mutton, per lb.	12	5	Coal, per ton, . . .	2 00	1
Veal, per pound, . .	10	4	Blankets, per pair, . .	5 00	
Tea, per pound	50	1	Sheetings, per yard, .	10	
Coffee, per pound, . .	30	1	Flannels, per yard, . .	50	2
Milk, per quart, . .	6	30	Calicoes, per yard, . .	8	
Molasses, per quart, . .	15	2	Lawns, per yard, . .	12½	
Sugar, per pound, . .	8	28	Toweling, per yard, . .	16	26
Butter, per pound, . .	23	16	Medicine, ...	20	

Has there been any change in rent or in the price of groceries, provisions, clothing, &c., during the past year?

A. Reduction in rent ten per cent. There has been no reduction otherwise.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. I worked in the mines of South Wales eight years, when I left for this country. I was getting six shillings and seven and one half pence a day. My condition was everything that a workingman can expect working fifty-four hours a week. It was in the flourishing time of 1872 I came to this country. I found the miners of bituminous coal in this State working from sixty to one hundred hours, and those who had large families needed all they could get, and they are in need of it yet, God knows. Although the miners of this State were making at least a dollar a day more at that time than the British miner, I could not see that their condition was any better than the British miner. I don't expect I could enlighten you much on this labor question if I was to try, but I will give you a few points. There is but little benefit that the workingmen of this State can expect from their earnings until they are at liberty to spend them to their best advantage.

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1. 1994. Miner, Shire Oaks, Washington county, Pa.
2. Married.
3. None.
6. $2 12.
7. Every four weeks.
9. One hundred and three.
10. Ten.
11. $8 00.
12. One hundred and sixty-five.
13. For three cents a bushel, gained. Against a reduction of one half cent per bushel, lost.
14. $6 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 82½		Butter, per pound, . .	$0 35	
Cornmeal, per pound,	2		Eggs, per dozen, . . .	30	
Rice, per pound, . . .	10		Lard, per pound. .	10	
Beans, per quart.	10		Cheese, per pound, . .	18	
Potatoes, per bushel, .	75		Ham, per pound, . .	15	
Cabbage, per head, . .	8		Soap, per pound. .	7	
Pork, per pound, . .	12		Starch, per pound, . .	12½	
Sausage, per pound, .	15		Boots per pair, ...	5 00	
Beef, per pound,	12½		Shoes, per pair, ...	3 00	
Lamb or mutton, per lb.	12½		Coal, per ton, . .	2 50	
Veal, per pound, . .	10		Blankets, per pair. . .	5 50	
Tea, per pound, . .	60		Sheetings, per yard, .	8	
Coffee, per pound, .	18		Flannels, per yard, .	25	
Milk, per quart . . .	8		Calicoes, per yard. . .	8	
Molasses, per quart, .	20		Toweling, per yard.	12½	
Sugar, per pound, . .	10		Churches, charities, &c.,	50	

I will make a few remarks to inform you that those wages on the other page were earned in April, May, and June at three cents per bushel, and to inform you that the wages have been reduced one half a cent per bushel, which leaves only two and a half cents a bushel, and we offered to arbitrate twice in this late strike, but the operators would not hear to it. I cannot give you a list of what we have consumed. I will leave it to you to judge, and to tell you that there are a lot of families that are about starving along the river at present, and to let you know that we have to work twelve to fourteen hours to make the wages referred to on the other page, and if Congress would pass a law, and attach a penalty to it, that no man should work more than eight hours a day, it would be the best thing it could do for the coal miners of Pennsylvania.

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1. 1995. Checkweighman, Shire Oak, Washington county, Pa.
2. Married.
3. Two.
4. One.
6. $2 50.
7. Monthly.
8. Reduction of fifty cents per day.
9. Fifty days lost.
10. None.
11. Nothing.
12. From September 1 until January 2.
13. Operators wanted to reduce wages from two and a half to two and a quarter cents per bushel. Men struck and demanded three cents. Strike took place from September 1 to January 2. Men went to work at two and one half cents.
14. From $3 50 to $7 50.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 85		Eggs, per dozen, . . .	$0 28	
Cornmeal, per pound,	25		Lard, per pound, . . .	12	
Oatmeal, per pound, .	15		Cheese, per pound, . .	15	
Rice, per pound, . . .	10		Cod-fish, salt, per lb., .	25	
Potatoes, per bushel, .	80		Mackerel per pound, .	25	
Cabbage, per head, . .	10		Ham, per pound, . . .	14	
Pork, per pound, . . .	10		Soap, per pound, . . .	25	
Sausage, per pound, .	10		Starch, per pound, . .	10	
Beef, per pound,	8		Boots, per pair, ...	5 00	
Lamb or mutton, per lb.	10		Shoes, per pair, . . .	2 00	
Veal, per pound, . .	8		Blankets, per pair, . .	6 00	
Tea, per pound, . . .	60		Sheetings, per yard, .	12	
Coffee, per pound, . .	18		Flannels, per yard, . .	37	
Milk, per quart, . .	8		Calicoes, per yard, . .	8	
Molasses, per gallon, .	80		Lawns, per yard, . .	15	
Sugar, per pound, . .	$8\frac{1}{2}$		Toweling, per yard, .	10	
Butter, per pound, . .	25				

Has there been any change in rent or in the price of groceries, provisions, clothing, &c., during the past year?

A. Rent fifty cents per month higher. During the three cent rate, from March until June, provisions never higher.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

I have worked in Scotland for twenty years. Wages there are smaller than here, but constant work renders them as comfortable and contented. Their provisions are coarser. They have less delicacies. On the whole, I believe they are more contented. I am a checkweighman, and my daily wages is not a fair criterion to go by. Eighty bushels of coal is a fair days' work, or $2 00 per day.

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1. 1996. Fire-boss, Elizabeth, Allegheny county, Pa.
2. Married.
3. Two children.
4. Not any.
5. Not any.
6. $2 25.
7. Once a month.
8. Reduced thirty-five cents per day.
9. Ninety days.
10. One day.
11. Fifty dollars.
12. Ninety days.
13. Against a reduction and for advance.
14. $4 50 per month.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 83	3	Lard, per pound,	$0 10	10
Cornmeal, per pound,	5½		Cheese, per pound,	14	10
Oatmeal, per pound,	7	6	Ham, per pound,	15	20
Rice, per pound,	10		Soap, per pound,	8½	6
Potatoes, per bushel,	85	1	Starch, per pound,	10	1
Cabbage, per head,	8	10	Boots, per pair,	2 50	2
Beef, per pound,	15		Shoes, per pair,	1 85	2
Tea, per pound,	80	2	Coal, per ton,	1 85	1
Coffee, per pound,	20	2	Sheetings, per yard,	8	
Milk, per quart,	8	30	Flannels, per yard,	45	3
Molasses, per quart,	20		Calicoes, per yard,	8	4
Sugar, per pound,	8	20	Toweling, per yard,	10	2
Butter, per pound,	30	12	Medicine,		20.00 per yr.
Eggs, per dozen,	25	6	Churches, charities, &c.,	50	

Has there been any change in rent or in the price of groceries, provisions, clothing, &c, during the past year?

A. Groceries and rent have advanced.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. I was in South Wales. Was above my present condition. Sir, in explanation as to my present occupation, which is fire-boss, I have only been occupying the position since the 4th day of this month. Previous to filling this position, my occupation was that of a miner, and along this Monongahela river I must say that a man following mining at the present rate of wages cannot support his family in decency, and clothe them with comfort at the present price of provisions at the "pluck-me," or company, stores, which is one of the greatest evils, together with the system of monthly pay, that we, as miners, have to contend with.

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1. 1997. Miner, West Newton, Westmoreland county, Pa.
2. Married.
3. Eight.
4. None.
5. Four.
6. My son, fifteen years old, $30 00 a month. If we had full work we could make $2 50 per day.
7. Every month.
8. Reduction of twenty-five per cent.
9. About one half of the year through strikes and trade.
10. We lost about four days.
11. Medical attendance, $24 00; medicine, $39 00.
12. Sixteen weeks.
13. Against a reduction of thirty-five per cent. Went to work at twenty-five per cent. off.
14. $8 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$1 70	5	Soap, per pound, . .	$0 08½	9
Oatmeal, per pound, .	5	5	Starch, per pound, . .	10	1
Rice, per pound, . .	10	6	Boots, per pair, ...	2 75	
Potatoes, per bushel, .	60	4	Shoes, per pair, ...	1 50	
Cabbage, per head, . .	5		Coal, per ton, ...	2 00	1
Pork, per pound, . . .	10	65	Blankets, per pair, . .	5 00	
Beef, per pound, . . .	14	52	Sheetings, per yard, .	10	10
Tea, per pound, . . .	50	6	Flannels, per yard, . .	25	7
Molasses, per gallon, .	70	1	Calicoes, per yard, .	10	10
Sugar, per pound, . .	13½	30	Toweling, per yard, .	10	
Butter, per pound, . .	30	4	Medicine, ...	39 00	
Eggs, per dozen, . . .	25	3	School-books,	50	
Lard, per pound, . .	10	20	Churches, charities, &c.,	6 00	
Cheese, per pound, . .	12	4			

Has there been any change in rent or in the price of groceries, provisions, clothing, &c., during the past year?

A. Rent and groceries about same. Clothing a little cheaper.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. Five years ago I worked in Durham, England, as a coal miner. My average wages per day were six shillings and four pence for six hours work in the pit; that was a day's work there: house rent and coal were furnished you by the company. All coal diggers there charged the same. Our average working days per week were five days. My condition there was better than here for the last two years. Six hours was a day's work in the pits in the north of England: a day's work here in this country is from four in the morning to five o'clock at night for miners. To be honest with you, the miners in the north of England are better paid for hours worked than here. The first three years I was here I did well and made money; the fourth year just about made both ends meet. Last year gone to the bad about $200 00.

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1. 1998. Miner. Irwin, Pa.
2. Married.
3. Three children, wife, and self—five.
4. None.
5. One.
6. $1 00.
7. Monthly.
8. Reduced forty-nine cents per day, or ten cents on the ton of 2,000 pounds, net.
9. About two hundred days, from strikes and no sale for coal.
10. None.
11. $1 00 per month.
12. About eight weeks.
13. Reduced the rate from sixty cents per ton to fifty.
14. The average is $7 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24½ lbs.	$0 80	3	Eggs, per dozen, . . .	$0 15	3 to 5
Cornmeal, per pound, .	2		Lard, per pound, . .	8	7
Oatmeal, per pound, .	5		Cheese, per pound. .	12½	2
Rice, per pound, . .	10	3	Cod-fish, salt, per lb., .	8	
Beans, per quart, . .	8	3	Mackerel, per pound, .	8	1 kit.
Potatoes, per bushel, .	60	1½	Ham, per pound, . .	11	1 ham.
Cabbage, per head, .	5		Soap, per pound, . . .	7	$1 00
Pork, per pound, .	11		Starch, per pound, . .	8	1
Sausage, per pound, .	12½	5 to 10	Shoes, per pair, ...	1 50	3 pairs.
Beef, per pound,	10	50	Coal, per ton, . .	2 00	1½
Lamb or mutton, per lb.,	10		Blankets, per pair, . .	3 75	
Veal, per pound, . . .	10		Sheetings, per yard, .	8	
Tea, per pound, . . .	50	2	Flannels, per yard, . .	33⅓	
Coffee, per pound, . .	15	1	Calicoes, per yard, . .	7	
Milk, per quart, . .	8		Lawns, per yard, . .	8	
Molasses, per quart, . .	18	3	Toweling, per yard, . .	10	
Sugar, per pound, . .	7	13	Medicine,	1 00	
Butter, per pound, . .	25	10	Churches, charities, &c.,	2 00	

Has there been any change in rent or in the price of groceries, provisions, &c., during the past year?

A. When we get a raise in wages the rents and provisions go up.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. I am an American citizen and am happy to take this means of letting the public know the state of the miners employed under the Penn Gas Coal Company. The miners are not making a decent living by any means, nor could they do so if they were working full time at the price now paid, which is fifty cents per ton, over a three-quarter inch screen, 2,000 pounds to the ton. By this report, you can see that we do not get half a living at the wages we now receive. We are not paying our way, but going in debt every month. What few clothes we have are wearing out, our names for honesty and uprightness are getting tarnished, and yet it is not our fault, for we try to live within our income and cannot. The articles mentioned in the preceding table are not all that my family need by any means, but I cannot get them every month. In conclusion, let me say that I will do anything that I can to give you information, and will be glad to do so, for by that means my craft may be recognized, and our country may make laws whereby a working man may make a decent living in this land of the so-called free.

1. 1822. Miner, Dravosburg, Allegheny county, Pa.
2. Married.
3. Three, one child.
4. None.
5. None.
6. $1 50 while working.
7. Once a month.
8. Reduced from three cents to two and one half.
9. Worked eighty-five days last year.
10. Have not lost a day through sickness.
11. $0 50.
12. Lost four months.
13. Offered two and a quarter cents, and struck for three; went to work for two and a half.
14. $5 00 a month.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$1 65		Eggs, per dozen, . .	$0 30	
Rice, per pound, . . .	14		Cheese, per pound, . .	15	
Beans, per quart, . .	10		Mackerel, per pound, .	10	
Potatoes, per bushel, .	70		Ham, per pound, . . .	13	
Cabbage, per head, . .	10		Starch, per pound, . .	10	
Pork, per pound, .	12		Boots, per pair, ...	4 00	
Sausage, per pound, .	8		Shoes, per pair, . .	2 50	
Beef, per pound,	14		Coal, per ton, ...	67½	
Lamb or mutton, per lb,	18		Blankets, per pair, . .	5 00	
Veal, per pound, . .	18		Sheetings, per yard, .	10	
Tea, per pound, . . .	70		Flannels, per yard, . .	40	
Coffee, per pound, . .	18		Calicoes, per yard, . .	8	
Milk, per quart, . . .	10		Lawns, per yard, . .	15	
Molasses, per quart, .	20		Toweling, per yard, .	10	
Butter, per pound, . .	35				

Has there been any change in rent or in the price of groceries, provisions, clothing, &c., during the past year?

No change in that line.

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1. 1812. Puddler, Pittsburgh, South Side, Pa.
2. Married.
3. Five.
4. None.
5. One.
6. $2 50.
7. Every two weeks.

8. Decrease fifty cents per day.
9. Ninety.
10. Seven.
11. Doctors' bills this year amount to $23 00; medicine, $9 75.
12. Sixty days lost through strikes.
13. Strike was against reduction of wages, which was compromised.
14. $11 00 per month.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 80	1½	Sugar, per pound,	$0 08	8
Cornmeal, per pound,	4		Butter, per pound,	30	3
Oatmeal, per pound,	5		Eggs, per dozen,	26	1
Rice, per pound,	8	2	Lard, per pound,	10	5
Beans, per quart,	10		Cheese, per pound,	17	3
Potatoes, per bushel,	1 00	1	Ham, per pound,	18	4
Cabbage, per head,	10		Soap, per pound,	8	6
Pork, per pound,	12½	6	Starch, per pound,	10	2
Sausage, per pound,	10	3	Shoes, per pair,		1
Beef, per pound,	18	18	Coal, per ton,	3 00	1
Lamb or mutton, per lb,	15		Blankets, per pair,	9 00	
Veal, per pound,	15		Sheetings, per yard,	10	
Tea, per pound,	60	2	Flannels, per yard,	35	5
Coffee, per pound,	15	2	Calicoes, per yard,	10	
Milk, per quart,	8	15	Lawns, per yard,	12½	
Molasses, per quart,	15	4	Toweling, per yard,	10	

Has there been any change in rent or in the price of groceries, provisions, clothing, &c., during the past year?

A. Slight decline in clothing.

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1. 1808. Puddler, Allegheny county, Pa.
2. Married.
3. No children.
4. None.
5. None.
6. $2 50.
7. Every two weeks.
8. Decrease of fifty cents per ton; we make one ton a day.
9. Ninety days.
10. None.
11. None.
12. One hundred and twenty five days.
13. Signing of the scale and bad coal.
14. $7 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$1 50	1	Butter, per pound, . .	$0 25	8
Cornmeal, per pound,	2½		Eggs, per dozen, . . .	30	2
Oatmeal, per pound, .	4⅓		Lard, per pound, . .	10	4
Rice, per pound, . . .	10	2	Cheese, per pound, . .	16	2
Beans, per quart, . . .	10	1	Ham, per pound, . . .	14½	4
Potatoes, per bushel, .	70	2	Soap, per pound, . .	5	8
Cabbage, per head, . .	10	4	Starch, per pound, . .	10	1
Pork, per pound, . .	10		Shoes, per pair, . . .	1 50	5 pairs a yr
Sausage, per pound, .	10		Coal, per bushel, . . .	8	$10 00 "
Beef, per pound, . .	15	60	Blankets, per pair, . .	9 00	
Lamb or mutton, per lb.	10		Sheetings, per yard, .	8⅓	4 a year.
Veal, per pound, . .	18	6	Flannels, per yard, . .	30	14 yds. a yr
Tea, per pound, . . .	60	4	Calicoes, per yard, . .	8	30 " "
Coffee, per pound, . .	20	4	Lawns, per yard, . .	15	1 a year.
Milk, per quart, . .	8	15	Toweling, per yard,	8⅓	3 a year.
Molasses, per quart. .	18	2	Churches, charities, &c.,	35 00	
Sugar, per pound, . .	10	20			

1. 1811. Steel worker, Homestead, Allegheny county, Pa.
2. Married.
3. Five.
4. None.
5. Two.
6. $2 00 per day.
7. Semi-monthly.
8. A decrease of thirty cents per day.
9. About thirty days, on business.
10. None.
11. About $10 00.
12. None.
14. $8 50.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.	$0 80	4	Lard, per pound,	$0 09	8
Cornmeal, per pound,	2½	10	Cheese, per pound,	10	3
Oatmeal, per pound,	2½	20	Cod-fish, salt, per lb.,	7	
Rice, per pound,	8	6	Mackerel, per pound,	5	3
Beans, per quart,	9	6	Ham, per pound,	11	10
Potatoes, per bushel,	65	1	Soap, per pound,	5	10
Cabbage, per head,	5	5	Starch, per pound,	10	½
Pork, per pound,	9	10	Boots, per pair,	2 00	5 prs. per yr
Sausage, per pound,	10	6	Shoes, per pair,	1 50	5 " "
Beef, per pound,	12½	15	Coal, per ton,	2 00	8 tons "
Lamb or mutton, per lb.	10	10	Blankets, per pair,	4 50	1 pair "
Veal, per pound,	10	5	Sheetings, per yard,	9	25 yds. "
Tea, per pound,	60	½	Flannels, per yard,	35	25 " "
Coffee, per pound,	15	2	Calicoes, per yard,	8	50 " "
Milk, per quart,	4	15	Lawns, per yard,	15	20 " "
Molasses, per quart,	10	1	Toweling, per yard,	10	25 " "
Sugar, per pound,	8	10	Medicine,		$5 00 "
Butter, per pound,	30	8	School-books,		5 00 "
Eggs, per dozen,	25	2	Churches, charities, &c.,		25 00 "

1. 1803. Nail-plate roller, South-Side, Pittsburgh, Pa.
2. Married.
3. Six.
4. None.
5. None.
6. This year it is $2 32 per day.
7. Every two weeks when I work.
8. Decreased $5 00 per week.
9. I have lost one month.
10. None.
11. $20 00.
12. Seven months.
13. This was the nailers' strike. I am a nail-plate roller, so I lose.
14. None.

Price paid and the average weekly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs	$1 60		Eggs, per dozen,	$0 32	1
Cornmeal, per pound,	4	1	Lard, per pound,	15	1
Oatmeal, per pound,	5	5	Cheese, per pound,	10	1
Rice, per pound,	10		Mackerel, per pound,	12	3
Potatoes, per bushel,	65	1 peck.	Ham, per pound,	15	1
Cabbage, per head,	10	2	Soap, per pound,	7	4
Pork, per pound,	15		Starch, per pound,	10	½
Sausage, per pound,	15		Boots, per pair,	10 00	
Beef, per pound,	18	10	Shoes, per pair,	4 50	
Lamb or mutton, per lb.	15	2	Coal, per bushel,	6½	400 per yr.
Veal, per pound,	15	2	Blankets, per pair.	12 00	
Tea, per pound,	75	¼	Sheetings, per yard,	25	
Coffee, per pound,	15	4	Flannels, per yard,	50	
Milk, per quart.	8	25	Calicoes, per yard,	8	
Molasses, per quart,	9	1 pint.	Lawns, per yard,	13	
Sugar, per pound.	10	8	Toweling, per yard,	12	
Butter, per pound,	40	4	Churches, charities, &c.,	1 02	

1. 1802. Hooker, Pittsburgh, Pa.
2. Married.
3. Two.
4. None.
5. Two.
6. $3 00.
7. Every two weeks.
8. Wages have been reduced during year thirty cents per day.
9. Forty days.
10. Eleven days.
11. $30 00.
12. Eighteen days.
13. Manufacturers refusing to sign iron workers' scale.
14. $13 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 49 lbs.	$1 65	1	Eggs, per dozen,	$0 20	6
Potatoes, per bushel,	80	1	Lard, per pound,	10	4
Cabbage, per head,	8	4	Cheese, per pound,	18	2
Pork, per pound,	12½	12	Ham, per pound,	14	12
Sausage, per pound,	70	6	Soap, per pound,	8	12
Beef, per pound,	12	24	Starch, per pound,	10	2
Tea, per pound,	60	2	Shoes, per pair,	1 80	1
Coffee, per pound,	17	4	Coal, per ton,	2 25	1
Milk, per quart,	7	28	Sheetings, per yard,	10	
Sugar, per pound.	8	12½	School-books,	50	
Butter, per pound,	25	6	Churches, charities, &c.,	2 50	

Has there been any change in rent, or in the price of groceries, provisions, clothing, &c., during the past year?

A. No; I think they are about the same as this time last year.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. I was ticket agent in Staffordshire, England, from 1870 to 1878. Wages about twenty-eight shillings per week. I think my present condition in this country is far better than it was in England.

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1. 1825. Miner, Wilkinsburg, Allegheny county, Pa.
2. Married.
3. Five.
4. None.
5. Three.
6. $2 95.
7. Once a month.
8. I suppose we have been reduced at least thirty per cent. or more.
9. About five days on my own account.
10. Two days, disability.
11. About $50 00.
12. About fifty-six days.
13. Reduction which had to be excepted.
14. $8 00.

Price paid and the average monthly consumption in your family of the articles enumerated below.

	Cost.	Consumption.		Cost.	Consumption.
Flour, per sack of 24 lbs.,	$1 15	3	Mackerel, per pound, .	$0 40	
Oatmeal, per pound, .	7	6	Soap, per pound, .	6	12
Potatoes, per bushel, .	80	3	Starch, per pound, . .	10	
Cabbage, per head, . .	6	3	Boots, per pair, ...	3 00	
Beef, per pound, . . .	12½	8	Shoes, per pair, . . .	2 00	
Coffee, per pound, . .	15	7	Coal, per ton, . . .	1 82	2
Milk, per quart, . . .	8	10	Blankets, per pair, . .	3 40	
Molasses, per quart, .	20	6	Sheetings, per yard, .	10	
Sugar, per pound, . .	10	4	Flannels, per yard, . .	35	
Butter, per pound, . .	35	5	Toweling, per yard, .	10	
Lard, per pound, . . .	10	12	School-books, ...	25 00	

Has there been any change in rent, or in the price of groceries, provisions, clothing, &c., during the past year?

A. None. Same, not much.

If, for any extended period, you were employed at wage labor in Europe, state where, and what was your occupation, and your condition there compared with your present condition in this country.

A. In Scotland, and mined coal and iron for sixteen years. My condition, I think, was better there than here. You should have an item for lard oil in your list, as miners use about one gallon per month, or about $8 00 a year. You should use all your influence to abolish the truck, or store, system about all public works, and make pay-day every two weeks.

KOHINOOR COLLIERY,
SHENANDOAH,

.AKER, OUTSIDE VIEW.
YLKILL Co., PA.

THE ANTHRACITE COAL REGION.

Department of Internal Affairs,
Bureau of Industrial Statistics, *May 1, 1886.*

Honorable J. Simpson Africa,
Secretary of Internal Affairs:

Sir: In conformity with the law making it obligatory upon this Bureau to compile and publish the productive statistics of mining, manufacturing, commercial, and other business interests of the State, I have, pursuant to your instructions, incorporated the annual reports of the anthracite mine inspectors, together with some observations in reference to the anthracite coal region, in the communication herewith submitted.

The nineteenth century presents an era in the world's history unparalleled in the development of physical resources. Physical conditions within the memory of many now living have completely changed the mode of life, the manner of conducting business, the scope of enterprise, and, as a necessary consequence, the intellectual development of the people. The expansive force of heated water has been shown in boiling geysers and volcanic action, and lightnings have flashed and destroyed far back in the mystic ages. The power of steam and electricity has been recognized through all time, but it was left to this century to chain and control them both for the conveyance of men's burdens and the transmission of men's thoughts. Space and time are in effect annihilated. A thousand miles are comprised within a day's journey, a thought will, in almost an instant, encircle the globe, and articulate conversation may be held over mountains and under seas. The effect of this rapid development of physical resources upon our manner of living has been such that many things which are now used as necessities by the poorest laborer would have been almost unattainable luxuries to crowned heads a little more than a generation ago. It would be hard to over estimate the effect of the introduction of anthracite coal in this work of physical progress. Only produced, largely, in a comparatively small area in Pennsylvania, its fires now burn brightly on land and sea thousands of miles away from its native bed, and its uses extend over a continent. In peace and in war it is not only an important, but, under present conditions, a necessary factor in our physical, and, through our physical, our intellectual progress. The history of its discovery and introduction is an oft-told tale. We learn with wonder how, for years, it was regarded as a curious, but at the same time useless, combination of carbon. Imagination can hardly con-

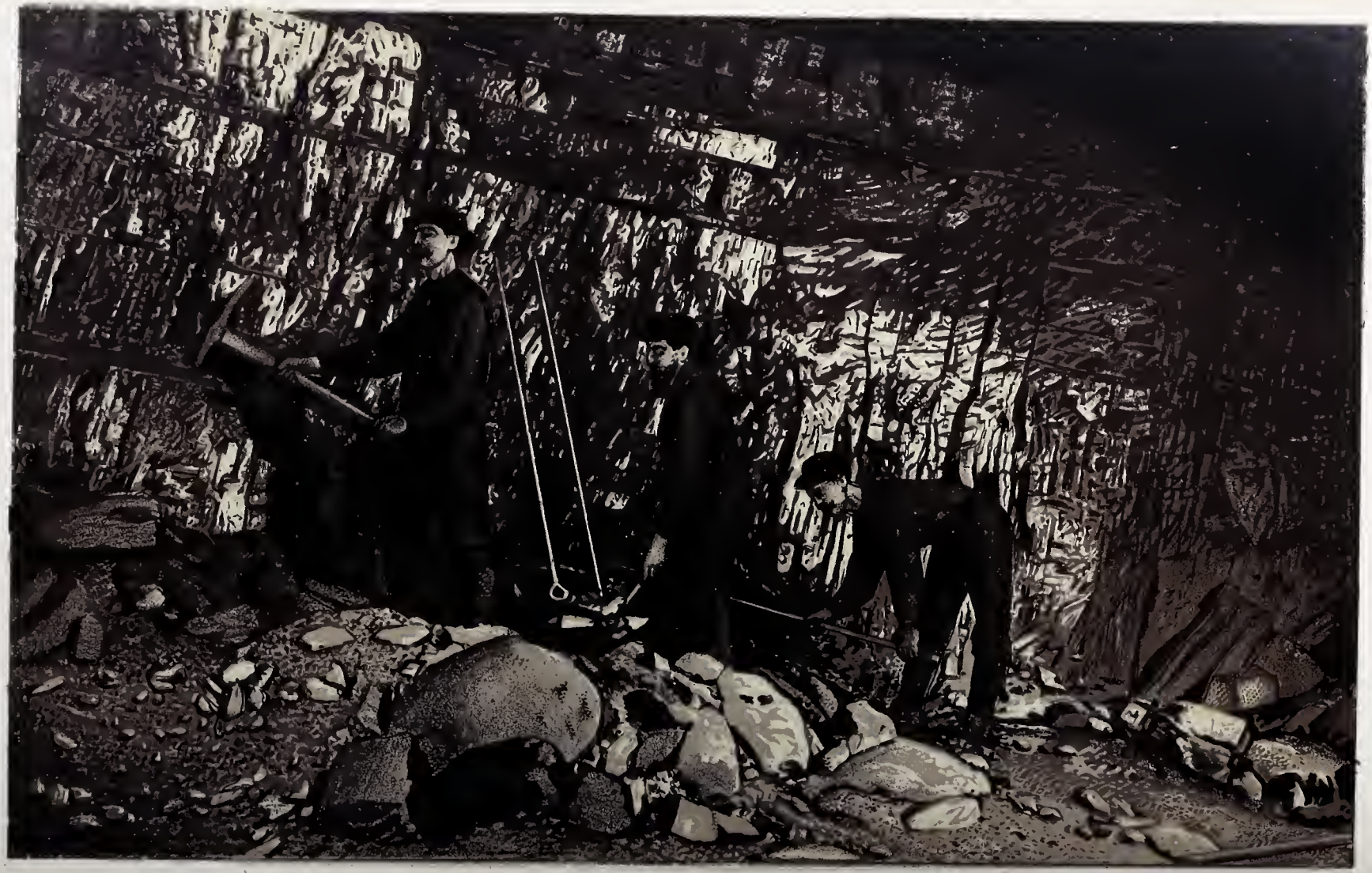
ceive that, in the year 1820, (the first year reported,) the total product was only three hundred and sixty-five tons; that in 1841, twenty-one years later, the yearly product had not reached one million tons. It was about this time that Mr. Joseph Lyon, one of the pioneers of the coal trade, was ridiculed as a visionary, because of his prediction that the output, in the course of time, would reach five million tons per annum. But already we have reached nearly seven times this output, and the possibilities of the future of anthracite coal are so great that could we of the present generation see beyond the next twenty years, our surprise at the world's progress and the development of the coal trade would be as great as that of Mr. Lyon and his associates, could they arise from a Rip Van Winkle sleep of a little more than forty years. The outside limits of the anthracite coal region are well known. The hard sub-carboniferous rocky bed of which the mountain to the south of Pottsville, known as the Second mountain, is composed, under various names, among which are Peters', Berries, Mahantongo, Line, Little, Mehoopany, encompass the anthracite coal region. This region is located in central Pennsylvania, and lies mainly within the counties of Schuylkill, Dauphin, Northumberland, Columbia, Luzerne, Lackawanna, Sullivan, and Carbon. Then, again, only parts of each of these counties are included within what is known as the anthracite region, and only a portion of it is really recognized as coal land. Within the region of the sub-carboniferous rock strata above referred to, wherever sufficient geologic height is attained, coal can be found. Within comparatively few years, experience has taught the value of coal beds, before regarded as valueless, and large tracts of land before regarded as barren are now among the most productive lands in the region. Not only has the workable area of the Northern, the Middle, and the Southern coal fields been extended, but the value and extent of detached basins are more fully known and appreciated.

The now recognized area of the anthracite coal fields is four hundred and seventy square miles, as follows, viz:

The Northern, ...	200	square	miles.
The Eastern Middle, ...	40	"	"
The Western Middle, ...	90	"	"
The Southern, ...	140	"	"
Total, ...	470	"	"

The area of the Loyalsock region is not sufficiently known even to approximate. There is probably nowhere on the earth's surface a territory so limited in extent almost monopolizing a mineral product which is fulfilling so important a function in the civilization of the age. Although the territory is limited, the yearly production, enormous as it is at present, in all human probability will greatly increase in years to come.

The production of coal mined in 1885, according to the report of John H. Jones, amounted to . . . . . 31, 623, 529 tons.



KOHINOOR COLLIERY,
FACE OF BREAST. MINERS AT WORK.

KOHINOOR COLLIERY,

FACE OF BREAST, MINERS USING PATENT DRILL.

By reports to this Bureau, that amount is exceeded by . 127, 017 tons.
The mine inspectors report an amount of coal exceeding
that reported by Mr. Jones of . . . . . 3, 477, 623 "

Amount as per mine inspectors' reports, ... 34, 101, 152 "

This discrepancy in the reports is more apparent than real. In Mr. Jones' report no account is taken of coal used in and about the mines. This is estimated at about eight per cent. additional to that shipped, and would very nearly correspond with the mine inspectors' reports.

The following table will not only show the comparative shipments from the different sections of the region, but also give, approximately, an idea of the magnitude of the railroad interests involved in anthracite coal carriage:

In the year 1885, the shipments were, viz:

Philadelphia and Reading railroad,	11, 680, 780 tons.
Lehigh Valley Railroad Company,	6, 107, 444 "
Delaware, Lackawanna and Western railroad,	4, 987, 834 "
Delaware and Hudson Canal Company,	3, 301, 873 "
Pennsylvania Railroad Company,	3, 393, 685 "
Pennsylvania Coal Company,	1, 500, 685 "
New York, Lake Erie and Western railroad,	651, 226 "
	31, 623, 527 "

In 1884, a product of 30,718,293 tons, distributed as follows:

In Pennsylvania, New York, and New Jersey,	20, 656, 297 tons.
In New England States,	5, 112, 825 "
In Western States,	2, 736, 099 "
In Southern States,	1, 336, 070 "
To Pacific coast,	8, 839 "
To Canada,	837, 185 "
To foreign ports,	30, 978 "
	30, 718, 293 "

The present condition of the anthracite coal trade can, perhaps, be better appreciated by reference to the following table, formulated from statistics in this Bureau:

Number of employés,	100, 082
Tons of coal mined in 1885,	34, 101, 152
Accidents in 1885,	1, 285
Fatal accidents,	312
Average tons of coal mined to each fatal accident,	109, 298
Average tons of coal mined per accident,	26, 538
Number of widows, fatal accidents in Third district,	71
Number of orphans,	219
Average number of working days,	196

The more fully to understand the immensity of this trade, the vast amount of capital invested must be considered. The United States census report for 1880 shows that at that time the proportion of capital invested to the dollar of production was as $3.67 to $1.00. Making a calculation upon this basis, the capital invested in 1885 would amount to about $230,000,000.

While the number of accidents in mining still remain large, it is hoped and believed that they will continue to decrease by reason of the improved system of mining, better ventilation, and greater care, both on the part of the employer and the employed. By the enactment of the mining laws, many safeguards to life and property are required to be observed. While it is true that in the past, either from inability or carelessness, proper means of protection for the miners in their dangerous avocations were wanting, yet it has oftentimes happened that the rashness of the miners, grown careless in the midst of constant danger, precipitated fatal accidents. Entire immunity from casualties, owing to the danger of the occupation, even under the best of circumstances, can hardly be expected, yet greater care is being required of and exercised by all parties. But mere figures give a faintidea of the greatness of this trade. The fair valley of the Wyoming, classic in its story, is still the charming home of the farmer, but fairly ablaze with workshop fires, crowded with colossal coal-breakers, and pulsating with the mighty engines of the mines ; the valleys of the Schuylkill and Northumberland, with mountain fastnesses teeming with busy life, and resounding with the never-ceasing whistle of the locomotive, and the magnificent mountains of Carbon, which give to this region the name of "the Switzerland of America," but from whose peaks may be viewed a scene of busy life never witnessed in Switzerland, must be seen to be fully appreciated.

To those who have visited the anthracite coal region, the information that thirty-four million one hundred and one thousand one hundred and fifty-two tons of coal were mined during the year 1885 is something more than a dry statistical fact. It brings to mind great lines of railroads, thronged with travel, burdened with freight, with armies of employés. They look into the deep shaft and dark slope, and see thousands of miles of railroad track deep down, penetrating the bowels of the earth. They hear the rumbling of the crushing coal in the lofty, massive breaker, and they see huge volumes of water drawn from dark cavernous mines by great engines and mighty pumps. Again are recalled long, inclined planes bearing heavy coal trains from the deep valley to the mountain top. They likewise see varieties of scenery which, either in grandeur or richness of flora, rival vivid descriptions of foreign tourists. Nor is the magnificence of the scenery marred by the hand of man. The mountain towers high, but the flying train passes over and on its crest; the black diamond is deep down, but the hard conglomerate is pierced to find its hidden home; the sloping hillsides and valleys are covered with thronging life, and every-

KOHINOOR COLLIERY.
ARNAUX ELECTRIC LIGHT PLANT IN EAST GANGWAY.

INSIDE VIEW EAGLE HILL BREAKER, BOYS PICKING SLATE.

where, blending with the shrill sound of the steam-whistle and the clang of the hammer, may be heard the mellow chime of the church bells, and the gleesome song of the children at play or on their way to school.

In the anthracite region, the struggle between the employer and employed has in times past been bitter and protracted, but of late years a better feeling has existed, which, it is to be hoped, will continue, and by means of which difficulties may be settled by arbitration, rather than by a strife destructive of both parties' interests. The enterprise of the people of the anthracite region is phenomenal, but it is in accord with the magnitude and risks of the business, and the pluck necessarily required to engage in it. Scranton has been denominated the metropolis of the anthracite coal region, and even the passing visitor to that beautiful city, with only a casual acquaintance with its people, in noting their quickness of decision and rapidity of action will be convinced that brilliant business enterprise and dash are not confined to New York and Chicago. Mining enterprises generally, while they give promise of greater results in proportion to investment, are accompanied with extraordinary risks, and require courage to engage in them. This is not so much the case in the anthracite coal trade at this time as in former days. The geology of the coal fields is better understood, the location and general reliability of the several coal beds known, while improved machinery and appliances have lessened the cost of production. Business enterprise no longer contains so many of the elements of a lottery. Calculations can be made upon the surer basis of knowledge, and therefore with more certainty. The spirit, however, of the early pioneer in the coal field still remains, and in Scranton, perhaps, there is more scope for individual enterprise than in the Middle and Southern coal fields. The same spirit, although perhaps not to the same extent, pervades stately old Wilkes-Barre, and the numerous thriving towns and villages of the Northern coal field. The extent of the development of the Middle coal field in the past twenty-five years is a wonderful revelation even to this progressive age. In a section of the State, the greater part of which was then primeval forest, is now located the thriving towns of Shamokin, Mount Carmel, Ashland, Shenandoah, and Mahanoy City, each the center of a large outlying mining population. This portion of the coal region is still gaining rapidly in population and is teeming with life. The present prosperity of the Southern coal field is not so marked. In that section anthracite coal was first discovered, and in its history must be told the early struggles, defeats, and triumphs of coal-mining. It contains more anthracite coal than all the other coal fields combined, and its mining operations are both extensive and productive. The largest body of the great white ash beds lies deep in this section, and is of course more expensive in development. Such development has, however, begun, and the country between Pottsville and Tamaqua is showing marked signs of improvement. Mauch Chunk, perched

in a mountain recess, proud of its location, has much of its capital invested in the Northern coal field and outlying basins, and is in a prosperous condition.

The views presented of the outside improvements and inside workings of the mines will, it is believed, prove interesting to those familiar with the coal region, as well as to those whose appreciation and knowledge are confined to the glowing anthracite in an open grate on a winter night. After anthracite coal is mined and hoisted to the surface, it must be prepared for market. Some conception of the massive structures required for this purpose may be had by an inspection of the outside view of Kohinoor colliery, and some idea of the heavy machinery and busy life presented by the inside view of the Eagle Hill colliery, showing boys picking slate. Coal, when first mined, does not present the clean appearance and regular size known to the purchaser. Cars loaded with lumps of irregular size, mixed with dirt and slate, are rapidly hoisted from the mine, and emptied on the strong iron teeth of the breaker; then, passing rapidly down chutes and over screens, the different sizes are assorted and deposited in the various bins below ready for shipment. Numbers of boys, begrimed by the ascending clouds of dust, in the semi-darkness looking like imps, with unerring eyes and deft fingers, pluck from the sliding coal such pieces of slate as the separating contrivances have failed to remove. The view of Mahanoy Plane represents an interesting feature of railroad enterprise in connection with mining.

The illustrations representing the works inside the mines, pillars and falling coal, miners at work using the patent drill, showing the electric light in operation, are of special interest, not only in giving a correct delineation of what is to be seen, but also as the successful result of an attempt to photograph by means of electricity. The views were taken by Mr. George M. Bretz, a skillful photographer, with lights furnished by the Arnoux Electric Light Company, of Pottsville. The experiment was a new one, and was not only watched with great interest, but greatly facilitated by Mr. S. B. Whiting, superintendent of the Philadelphia and Reading Coal and Iron Company. As is shown by the accompanying plates, the experiment was a perfect success, and marks a new era in the history of photographing mining views.

With a trade of such great importance to the country as well as to the State, the necessity of good mining laws is obvious. This has been appreciated by the Legislature, and the present law was passed, which has proven of considerable benefit. The appointment of mine inspectors is a feature in the law which is regarded as especially satisfactory. These officials are not only intelligent, but appreciate the importance of their work and endeavor to perform it satisfactorily. The present inspectors are:

Patrick Blewitt, Scranton, First district.

H. M. McDonald, Pittston, Second district.

BREAST No. 1. I
SHENANDOAH

RIDGE COLLIERY,
YLKILL COUNTY.

G. M. Williams, Wilkes-Barre, Third district.
James E. Roderick, Hazleton, Fourth district.
William Stein, Girardville, Fifth district.
James Ryan, Ashland, Sixth district.
Samuel Gay, Pottsville, Seventh district.

The importance of reliable statistics relative to the anthracite coal fields is being better understood, and the value of these statistics, together with other information of a similar nature obtained by this Bureau, it is believed will be highly beneficial to, and generally appreciated by, the public.

JOEL B. McCAMANT,
Chief of Bureau.

ANTHRACITE COAL.

Table of production of anthracite coal, average number of persons employed, annual wages paid, average number of days in operation, and number of producing mines, compiled from returns made to this Bureau by one hundred and forty one operators, for the year ending December 31, 1885.

COUNTIES.	Number of mines in operation.	Number of days operated.*	Average number of persons employed.	Amount paid in wages.	Number of tons of coal mined.
Carbon	10	220	3,535	$1,340,380	1,113,871
Columbia,	7	195	1,784	584,416	595,809
Dauphin,	2	289	1,072	225,570	219,032
Lackawanna,	60	164	18,767	6,286,555	6,184,697
Luzerne,	118	187	38,986	13,429,570	13,346,531
Northumberland,	22	220	7,404	2,688,804	2,237,256
Schuylkill,	88	205	22,761	8,149,925	7,854,393
Sullivan,	1	199	236	91,776	75,011
Susquehanna,	1	172	260	121,646	84,459
Total, 1885,	309	196	94,805	$32,918,642	31,711,059
Total, 1884,	281	185	83,316	29,906,262	25,651,664
Increase,	28	11	11,489	$3,012,380	6,059,395

* The number of days operated represent the time the large majority of the employees had employment and not the number of days the mines were in operation. Mines are frequently in technical operation at a time when fully one third or one half the employees are idle. Mines are in technical operation about two hundred and twenty days in a year on an average.

The above statistics are compiled from the reports made to this Bureau by all the large operators and eleven small concerns not reported previously. All the large operators reporting in 1885 had reported in 1884.

The report of Mr. John H. Jones, accountant for the Philadelphia and Reading Coal and Iron Company, states the production for 1885 at 31,623,529 tons, showing a difference of but 87,530 tons between his report and the report of this Bureau. To the amount reported, there should be added about six per cent. for local consumption in and about the mines. Since the above table was prepared, a Lackawanna county mine reports a production of 39,487 tons of coal, employs 250 persons, paid $45,642 in wages, which, added to the total in the table, would make 95,055 employés, $32,964,284 annual wages paid, and 31,750,546 tons of coal produced, or 127,017 tons more than reported by Mr. Jones. When it is considered that the reports of Mr. Jones and those of the Bureau were obtained in a totally different manner, without agreement or collusion, the table presented may be relied upon as accurate, at least for all practical purposes.

The annual wage fund, if divided equally, or share and share alike, among all employés, it would give to each about $347 per annum, or about $29 per month.

The average highest wages paid to miners was $2 per day. Miners on contract received from $2 25 to $3 per day. Average highest wages paid to laborers was $1 40 per day; boys were paid from fifty cents to sixty cents per day.

Counting three hundred and seven days as working days, and deducting therefrom the number of days the employés were actually employed, there was a loss of working time amounting to one hundred and eleven days.

KOHINOOR COLLERY—BREAST No. 39.
PILLAR AND FALLEN COAL—MINERS AT WORK.

KOHINOOR COLLIERY—BREAST No. 39.
PILLAR AND FALLEN COAL.

FIRST DISTRICT,

Comprising Lackawanna, Wayne, and Susquehanna Anthracite Coal Field.

OFFICE OF THE INSPECTOR OF MINES,
SCRANTON, PA., *April 14, 1886.*

Honorable J. SIMPSON AFRICA, *Secretary of Internal Affairs, Commonwealth of Pennsylvania:*

SIR: I have the honor of herewith submitting my annual report as inspector of coal mines for the First anthracite district, for the year ending December 31, 1885, in compliance with section seven, article two, of an act of Assembly, approved June 30, 1885, entitled "An act to provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania, and for the protection and preservation of property connected therewith."

In the collection of necessary statistics for this report, I had considerable trouble, inasmuch as many of the operators were very negligent in furnishing proper information. Not until I called their attention to the law could I get the requisite information. In my report, which is condensed and tabulated, you will find all statistics that were furnished me.

I complied with your request and filled blanks furnished from your office, as far as I possibly could, but they do not cover the points mentioned in the mine law of June 30, 1885. Under the provisions of that law, there was a new district created out of a portion of the Eastern and Middle districts, which is now called the Second district, a mine inspector for which was appointed last October. The list of deaths and accidents in my report is, up to that date, as having occurred in the old Eastern district, but all the coal mined in the portion taken out of the Eastern district is returned in Mine Inspector McDonald's report. You will also find hereto attached the answers to questions which I requested each operator to send me. send these for your information, as there are several questions and answers which are not embodied in the main report furnished your department, and you may make use of them.

The mines in this district are in excellent condition, and are still improving in ventilation and safety. I have met with a very prompt compliance with all demands and suggestions made by me in having the provisions of the new mine law made effective, and it is hoped that living up strictly to its provisions that the health and safety of persons employed in and about the mines will steadily improve.

The following is a summary of some of the more important statistics:

Amount of coal mined in 1885,	7, 258, 853	tons.
Amount of coal shipped in 1885,	6, 747, 157	"
Tons of coal produced per life lost,	134, 423	"
Tons of coal for each personal injury,	37, 416$\frac{8}{10}$	"
Ratio of employés per life lost,	364	
Ratio of employés per personal injury,	101	
Tons of coal produced for each employé in mine,	523	"
Tons of coal produced for each employé,	367$\frac{94}{100}$	"
Tons of coal produced for each widow,	234, 157	"
Tons of coal produced for each orphan,	68, 480	"

Respectfully submitted.

PATRICK BLEWITT,
Inspector of Mines, &c.

TABLE I.—*Showing location of collieries in the First Anthracite Mine District.*

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Post-Office Address.
Archbald Shaft,	Del., Lacka. and West. Railroad Company,	Lackawanna,	Benjamin Hughes,	Scranton.
Bellevue Shaft,	do. do. do.	do.	do. do.	do.
Bellevue Slope,	do. do. do.	do.	do. do.	do.
Brisbin Shaft,	do do. do.	do.	do. do.	do.
Bridge Mines,	Bridge Coal Company, Limited,	do.	A. B. Stevens,	do.
Brennan's Mines,	Thomas Brennan,	do.	Thomas Brennan,	Carbondale.
Continental Shaft,	Del. Lacka. and West. Railroad Company,	do.	Benjamin Hughes,	Scranton.
Central Shaft,	do. do. do.	do.	do. do.	do.
Cayuga Shaft,	do. do. do.	do.	do. do.	do.
Capouse Shaft,	Lackawanna Iron and Coal Company,	do.	Reese G. Brooks,	do.
Coal Brook Mines,	Delaware and Hudson Canal Company,	do.	A. H. Vandling,	do.
Dunn Mine,	Pennsylvania Anthracite Coal Company,	do.	John Jermyn,	do.
Dodge Mines,	Del., Lacka. and West. Railroad Company,	do.	Benjamin Hughes,	do.
Diamond, No. 2, Shaft,	do. do. do.	do.	do. do.	do.
Diamond, Tripps Shaft,	do. do. do.	do.	do. do.	do.
Diamond, Tripps Slope,	do. do. do.	do.	do. do.	do.
Dolph Mine,	Edward Dolph,	do.	Edward Dolph, Jr.,	do.
Eddy Creek Shaft,	Delaware and Hudson Canal Company,	do.	A. H. Vandling,	do.
Eaton Mines,	Jones, Simpson & Co.,	do.	Edward Jones,	Archbald.
Edgerton Mine,	Edgerton Coal Company, Limited,	do.	Andrew Clarkson,	Jermyn.
Erie Shaft,	Hillside Coal and Iron Company,	do.	W. A. May,	Scranton.
Fair Lawn Slope,	Fair Lawn Coal Company, Limited,	do.	John H. Hosie,	do.
Filer's Slope.				
Forest City Shaft,	Hillside Coal and Iron Company,	Susquehanna,	W. A. May,	do.
Glendale Mines,	Glendale Coal Company,	Lackawanna,	F. A. Beamish,	do.
Greenwood Mines,	Pennsylvania Anthracite Coal Company,	do.	John Jermyn,	do.
Green Ridge Slope,	O S. Johnson,	do.	O. S. Johnson,	do.
Grassy Island Shaft,	Grassy Island Coal Company,	do.	C. D. Simpson,	do.
Grassy Island Shaft,	Delaware and Hudson Canal Company,	do.	A. H. Vandling,	do.
Holden Mines,	Del., Lacka. and West. Railroad Company,	do.	Benjamin Hughes,	do.
Hampton Mines,	do do. do.	do.	do. do.	do.
Hyde Park Mines,	do. do. do.	do.	do. do.	do.
Jermyn, No. 1, Shaft,	Delaware and Hudson Canal Company,	do.	A. H. Vandling,	do.
Jermyn, No. 2, Slope,	do. do. do.	do.	do.	do.
Jermyn, No. 4, Shaft,	John Jermyn,	do.	J. J. Jermyn,	do.
Leggett's Creek Shaft,	Delaware and Hudson Canal Company,	do.	A. H. Vandling,	do.
Lackawanna Coal Company Shaft,	Lackawanna Coal Company,	do.	O. S. Johnson,	do.
Lucas, now Dixon Shaft,	Delaware and Hudson Canal Company,	do.	A. H. Vandling,	do.
Meadow Brook Tunnel,	William Connell & Co.,	do.	William Connell,	do.
Meadow Brook Shaft,	do. do.	do.	do.	do.
Mount Pleasant Slope,	William T. Smith,	do.	William T. Smith,	do.
Manville Shaft,	D. L. and W. R. Co., and D. and H. C. Co.,	do.	B. Hughes & A. H. Vandling,	do.
Marome Shaft,	Delaware and Hudson Canal Company,	do.	A. H. Vandling,	do.

TABLE 1—*Continued.*

NAME OF COLLIERY.	Name of Operator.	Location—County.	Name of Superintendent.	Post-Office Address.
No. 1 Shaft,	Delaware and Hudson Canal Company,	Lackawanna,	A. H. Vandling,	Scranton.
No. 3 Shaft,	do. do. do.	do.	do.	do.
National Shaft and Slope,	William Connell & Co.,	do.	William Connell,	do.
Old Forge Shaft,	Pennsylvania Coal Company,	do.	John B. Law,	Pittston.
Oxford Shaft,	Del., Lacka. and West. Railroad Company,	do.	Benjamin Hughes,	Scranton.
Olyphant, No 2,	Delaware and Hudson Canal Company,	do.	A. H. Vandling,	do.
Pyne Shaft,	Del., Lacka. and West. Railroad Company,	do.	Benjamin Hughes,	do.
Pine Brook Shaft,	Lackawanna Iron and Coal Company,	do.	Reese G. Brooks,	do.
Pancoast Mines,	Pancoast Coal Company,	do.	George Griffin,	Throop.
Pierce Mines,	Pierce Coal Company,	do.	Edward Jones,	Archbald.
Powderly Mines,	Delaware and Hudson Canal Company,	do.	A. H. Vandling,	Scranton.
Richmond Mines,	Elk Hill Coal and Iron Company,	do.	William H. Richmond,	Dickson City.
Raekett Brook,	Delaware and Hudson Canal Company,	do.	A. H. Vandling,	Scranton.
Spring Brook Mines,	William E. Colbourne,	do.	William E. Colbourne,	Moosic.
Sibley Mines,	Elliott, McClure & Co.,	do.		
Scranton Slope,	Del., Lacka. and West. Railroad Company,	do.	Benjamin Hughes,	Scranton.
Sloan Shaft,	do. do. do.	do.	do. do.	do.
Storrs' Shaft,	do. do. do.	do.	do. do.	do.
Shaft No. 13,	Pennsylvania Coal Company,	do.	John B. Law,	Pittston.
Starks' Shaft,	do. do.	do.	do.	do.
Shaft No. 2, Dunmore,	do. do.	do.	James Young,	Dunmore.
Shaft No. 3, Dunmore,	do. do.	do.	do.	do.
Shaft No. 4, Dunmore,	do. do.	do.	do.	do.
Shaft No. 5, Dunmore,	do. do.	do.	do.	do.
Screens, Dunmore,	do. do.	do.	do.	do.
Spencer's Shaft,	A. D. & L. M. Spencer,	do.	A. D. Spencer,	do.
Taylor Shaft,	Del Lacka. and West. Railroad Company,	do.	Benjamin Hughes,	Scranton.
Von Storch Mines,	Delaware and Hudson Canal Company,	do.	A. H. Vandling,	do.
White Oak Mines,	do. do. do.	do.	do.	do.
Winton Mines,	Winton Coal Company, limited,	do.	Byron M. Winton,	Peckville.

TABLE II.—*Showing character of coal, production, number of employés, days employed, causalties, &c., in the First Anthracite Mine District, for the year, A. D. 1885.*

Collieries.	Operators.	Character of coal. (Anthracite or Semi-Anthracite, Bituminous or Semi-Bituminous.)	Drift, slope, or shaft.	Number of inside workmen.	Number of outside workmen.	Total employees.	Number of days worked inside.	Number of days worked outside.	Number of horses and mules.	Production.		Casualties.				
										Number of tons produced.	Number of tons shipped.	Killed inside.	Killed outside.	Injured inside.	Injured outside.	Total killed and injured.
Archbald,	Del., Lacka. and West. R. R. Co.,	Anthracite.	Shaft,	213	111	324		444.9	39	33,080.11	29,262.11					
Bellevue,	do. do. do.	do.	do.	190	159	444		130.4	65	124,680.05	119,980.05	0	0			
Bellevue,	do. do. do.	do.	Slope,	95								2	0			
Bridge,	Bridge Coal Company, limited,	do.	Shaft,	131	116	247		240.7	46	75,539	60,924		1			
Brisbin,	Del., Lacka. and West. R. R. Co.,	do.	do,	251	102	353		169	49	158,245.08	148,217.18	2				
Blanchard,	North-Western Coal Company,	do.	Drift,	66	50	116		91	14	12,170	11,622	2				
Continental,	Del , Lacka. and West. R.R. Co.,	do.	Shaft,	266	121	387		182	56	189,345.08	182,169.08	1				
Central,	do. do. do.	do.	do.	335	134	469		182.8	59	227,848.08	213,010.08	3				
Cayuga,	do. do. do.	do.	do.	245	117	362		184.9	52	169,919.12	164,397.17	1				
Capouse,	Lackawanna Iron and Coal Co.,	do.	do.	485	149	634		214.2	91	371,707.01	359,130.18	2				
Coal Brook,	Delaware and Hudson Canal Co.,	do.	Tunnel,	452	203	655		210¾	88	228,549.18	225,333.15	1				
Church,	Church Coal Company, limited,	do.	Drift,	18	12	30		200	8	14,000	4,953					
Dunn,	Penna. Anthracite Coal Company,	do.	Shaft, Slope,	197	89	286		169.3	31	88,296.12	87,584.12					
Dolph,	Dolph Coal Company, limited,	do.	Drift,	103	71	174		134½	13	23,909	23,731.06					
Dunmore Breaker,	Pennsylvania Coal Company,	do.			52	52		212¾	4	94,070.15	93,712					
Dixon,	Delaware and Hudson Canal Co.,	do.	Shaft,	263	122	385		198	33	108,894.19	107,364.08	1				
Dodge,	Del., Lacka. and West. R. R. Co.,	do	do.	235	104	339		182.2	87	151,443.12	145,978.12					
Diamond, No. 2,	do. do. do.	do.	do.	168	133	301		179	88	223,813.08	205,458.08	1				
Diamond Tripps Shaft,	do. do. do.	do.	do.	176	100	276		179	51			1				
Eddy Creek,	Delaware and Hudson Canal Co.,	do.	do.	313	130	443		208	39	135,193.10	121,511.13					
Eaton Mines,	Jones, Simpson & Co.,	do.	Drift,	198	96	294		194.3	25	86,790.11	86,630.06	1				
Edgerton,	Edgerton Coal Company, limited,	do.	do.	146	61	207		166.9	17	75,126.04	73,523.18					
Erie,	Hillside Coal and Iron Company,	do.	Shaft,	244	104	348		202½	43	114,953.05	113,642.17					
Forest City,	do. do. do.	do.	do.	154	62	216		171¾	30	84,459.07	83,163.13	1				
Fair Lawn,	Fair Lawn Coal Company, limited,	do.	Slope,	133	58	191		134½	16	46,146	44,945					
Filer's Slope,	Griffiths, Thomas & Co.,	do.	do.	132	65	197		160	17	47,575	46,717.10					
Glendale,	Glendale Coal Company,	do.	Drift,	101	48	149		164	17	40,260	39,549					
Greenwood,	Penna. Anthracite Coal Company,	do.	Shaft, Slope,	351	137	488		165	54	121,685.02	120,197.02	2				
Green Ridge,	O. S. Johnson,	do.	Slope,	293	100	393		203¾	39	135,749	130,045	1				
Grassy Island,	Grassy Island Coal Co., limited,	do.	Shaft,	243	101	344		177⅛	29	109,096	106,132.05					
Grassy Island,	Delaware and Hudson Canal Co.,	do.	do.	237	116	353		210½	40	134,832.17	124,435.05					

TABLE II.—VENTILATION OF COLLIERIES—*Continued.*

COLLIERIES.	Operators.	Character of coal. (Anthracite or Semi-Anthracite. Bituminous or Semi-Bituminous.)	Drift, slope, or shaft.	Number of inside workmen.	Number of outside workmen.	Total employees.	Number of days worked inside.	Number of days worked outside.	Number of horses and mules.	PRODUCTION.		CASUALTIES.				
										Number of tons produced.	Number of tons shipped.	Killed inside.	Killed outside.	Injured inside.	Injured outside.	Total killed and injured.
Holden,	Del., Lacka. and West. R. R. Co.,	Anthracite.	Shaft,	140	70	210		76.1	22	30,759.02	29,280.02					
Hyde Park,	do. do. do.	do.	do.	272	108	380		181.8	49	182,260.07	177,156.07	1				
Jermyn No. 1,	Delaware and Hndson Canal Co.,	do.	do.	239	91	330		202¼	32	140,367.06	122,938.03	1				
Jermyn No. 2,	do. do. do.	do.	Slope,	56	13	69		161¾	13	31,361 04	28,899.13					
Jermyn No. 4,	John Jermyn,	do.	Shaft,	275	100	375		170½	31	127,907	126,944	2	1			
Leggett's Creek,	Delaware and Hndson Canal Co.,	do.	do.	308	107	415		182½	53	158,415.19	147,460.19	2				
Lackawanna Coal Company,	Lackawanna Coal Company,	do.	do.	239	100	339		166	34	123,645	122,250	3	1			
*Meadow Brook,	William Connell & Co.,	do.	Tunnel,	75		75			16							
Meadow Brook Shaft,	do. do.	do.	Shaft,	220	102	322		193	41	131,308	112,117					
Mount Pleasant,	William T. Smith,	do.	Slope,	187	127	314		184.2	35	123,636.16	114,636.16	1				
Manville,	Del., Lacka. and West. R. R. Co and Del. and Hud. Canal Co.,	do.	Shaft,	297	106	403		190¾	47	192,176.03	180,553.03					
Marvine,	Delaware and Hudson Canal Co.,	do.	do.	316	101	417		206½	56	185,430.19	172,910.19	1				
No. 1 Shaft, Carbondale,	do. do. do.	do.	Shaft, Tunnel,	265	30	295		201¾	28	34,462.02	33,322.02	1				
No. 3 Shaft, Carbondale,	do. do. do.	do.	Shaft,	125	21	146		30¼	10	6,653	2,584	2				
National,	William Connell & Co.,	do.	Shaft, Slope,	189	104	293		172.1	30	106,522	106,522					
Old Forge,	Pennsylvania Coal Company,	do.	Shaft,	196	112	308		225½	26	130,465	130,465	2				
Oxford,	Del., Lacka. and West. R. R. Co.,	do.	do.	177	94	271		32.4	52	19,510.05	15,134.05					
Olyphant No. 2,	Delaware and Hudson Canal Co.,	do.	do.	195	105	300		1¾	35	8,090.10	507.02					
Pyne,	Del., Lacka. and West. R. R. Co.,	do.	Shaft, Slope,	260	104	364		132.4	59	172,099.18	166,366.18					
†Pine Brook,	Lackawanna Iron and Coal Co.,	do.	Shaft,	7	8	15										
Pancoast,	Pancoast Coal Company, limited,	do.	do.	299	106	405		208½	41	142,118	129.288					
Pierce,	Pierce Coal Company, limited,	do.	Slope, Tunnel,	193	94	292		145	23	92,007	90,357					
Powderly,	Delaware and Hndson Canal Co.,	do.	Slope,	187	26	213		170½	21	54,842.16	50,147.06	1				
Richmonds,	Elk Hill Coal and Iron Company,	do.	Shaft,	75	50	125		156	14	34,916	34,316					
Racket Brook,	Delaware and Hndson Canal Co.,	do.	Breaker,		77	77		240½	4	190,601.05	188,410.15					
Spring Brook,	William E. Colbourne,	do.	Drift,	84	34	118		141	13	33,076.10	32,522.01					
Sibley,	Elliott, McClure & Co.,	do.	Shaft, Slope,	142	78	220		192.8	23	79,646	69,944					
Sloan,	Del., Lacka. and West. R. R. Co.,	do.	Shaft, Slope,	270	134	404		182.9	59	180,005.03	172,770.03	1				

‡Storrs, ...	do. do. do.	do.	Shaft, . .	. . . .	8	8	. . .	. . . .	. . .	. . . .	. . . .	. .	. .	. .	. .	. . .
Shaft No. 13, ...	Pennsylvania Coal Company, . .	do.	do. . .	152	21	173	. . .	235	35	93,869	93,869	1	. .	. .	. .	. . .
Shaft No. 2, Dunmore, . . .	do. do. .	do.	do. . .	134	11	115	. . .	185	11	45,490	26,763	. .	. .	. .	. .	. . .
Shafts No. 3 and 4, Dunmore,	do. do. . .	do.	do. . .	240	64	304	. . .	197½	39	124,158	115,544	1	. .	. .	. .	. . .
Shaft No. 5, Dunmore, . . .	do. do. . .	do.	do. . .	151	76	227	. . .	164	18	79,471	71,174	1	. .	. .	. .	. . .
Screens, Dunmore, ...	do. do. . .	do.	Breaker,	. . . .	64	64	. . .	186¾	2	90,626½	90,189	. .	1	. .	. .	. . .
Spencers, Dunmore, ...	A. D. & L. M. Spencer, ...	do.	Shaft, .	160	107	267	. . .	155	24	95,096	87,896	1	. .	. .	. .	. . .
Taylors, ...	Del., Lacka. and West. R. R. Co.,	do.	Shaft, . Drift,	290	148	438	. . .	184½	78	150,602.06	143,549.06	2	. .	. .	. .	. . .
Von Storch, ...	Delaware and Hudson Canal Co.,	do.	Shaft, . Slope,	451	141	592	. . .	207½	76	241,537.19	220,525.03	3	. .	. .	. .	. . .
White Oak, ...	do. do. do.	do.	Slope, Drift, .	176	114	290	. . .	211½	33	103,821.03	97,913.14	1	. .	. .	. .	. . .
Keystone, ...	Hillside Coal and Iron Company,	do.	Drift, . .	146	44	190	. . .	186¾	23	61,183.19	61,183.19	. .	. .	. .	. .	. . .
Totals, ...	. . . .	. . . .	. . . .	13,627	6,023	19,650	. . .	. . . .	2,422	7,225,319.10	6,747,157.11	50	4	171	23	248
Local coal sale mines, . . .	. . . .	. . . .	. . . .	149	70	219	. . .	. . . .	36	33,534	. . . .	. .	. .	. .	. .	. . .
Grand totals, ...	. . . .	. . . .	. . . .	13,776	6,093	19,879	. . .	. . . .	2,458	7,258,853.10	6,747,157.11	50	4	171	23	248

*Coal prepared at National breaker. †No coal mined in 1885. ‡No coal shipped in 1885.

TABLE III —*Showing methods of ventilation, size of fans and furnaces, size of inlets and outlets, number of headings, number of openings, and the air measurements taken at the collieries in the First Anthracite Mine District, for the year 1885.*

COLLIERIES.	Ventilation—Natural, Furnace, or Fan.	Number of openings.	Diameter of fan in feet.	Size of furnace in feet.	Size of inlet in square feet.	Size of outlet in square feet.	Number of headings.	NOVEMBER. Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Archbald Mine,	Fan,	2	12		133	72	6		20,658	546	17,254		18,252
Split A,									71,456	174	16,729		
Split C,										166	12,636		
Split E,										213	8,960		
Split F,										246	12,250		
Split H,										307	8,271	1,037	74,690
Total,								698	92,114		76,100	1,291	92,942
Bellevue Shaft, J,	Fan,	2	14		75.6	84.4	6	1,140	86,177	242	18,154		
Split A,										141	10,098		
Split B V,										317	9,515		
Split H,										168	10,080		
Split D,										215	6,457		
Split B,										371	13,365	1,156	97,608
Total,									86,177		67,669		97,608
Bellevue Slope, G E,	Fan,	2	14		80	69	2	735	58,800	388	27,200		
Split G H F,										401	22,620	885	61,050
Total,									58,800		49,820		61,050
Brisbin Mine, B. Williams,	Fan,	2	14		90	120	5	488	43,953	275	16,500	590	70,800
B. Williams split,					70	80		240	16,310	222	15,600	228	18,200
Thomas Carwardin's split,					85			255	21,690	254	15,246		
John X. Davis split,										270	16,200		
A. L. Starkey split,					140	90				144	10,100		
Total,								588	82,453		73,646	989	89,000

Bridge Mines, No. 1, split,	Fan,	2	14		67	72		388	26,040	389	25,716	441	31,752
No. 2, split,					56	70		268	15,020	230	14,749	265	18,522
Total,					80	98		513	41,060		40,465	513	50,274
Brennan's Mines, (no coal mined in 1885,)													
Continental, Hogan's split,	Fan,	2	12		210	91	6	501	105,275	223	18,175		
William E. Reese split,										202	16,395		
Morgan Morgan's split,										241	17,250		
William Hughes' split,										260	19,525		
Charles Combe split,										265	17,375		
Patrick Cannon's split,										265	14,200	1,186	107,950
Total,								501	105,275		102,920	1,186	107,950
Central Mines, West Side split,	Two fans,	2	17½		51½	51.4		336	17,400	282	14,500		
P. Hart's split,					128.3			694	89,088	233	12,027		
F. Mangan split,										54	3,348		
William Beddoe split,										177	11,484		
M. Edwards' split,					35	73.3		362	12,670	205	12,345	1,368	100,280
Locomotive split,										288	15,186		
Tunlin's split,										293	17,756		
Laughan's split,					64.6	83		260	16,798	174	16,006	646	53,655
Rock vein, East split,					60			421	25,263	250	20,000		
Rock vein, West split,						60.2				70	3,210	517	31,140
Total,									161,219		125,859		185,075
Cayuga Mines, Diamond split,	Fan,	2	12		128	72		261	33,468	371	23,180	470	33,846
George Burch split,					77	70		562	43,280	423	25,376	647	45,286
John Wanton split,										354	14,170		
Total,									76,748		62,726		79,132
Capouse Shaft, G split,	Fan,	3	20		70	84		260	18,200	205	18,000	225	18,900
I split,					126	72		143	18,000	166	17,400	254	18,270
K split,					70	70		271	19,000	260	18,200	271	19,000
L split,					70	192		223	15,600	181	15,240	83	16,000
E G split,	Fan,		9		210	54		107	22,400	260	20,200	444	24,000
F G split,					70	84		314	22,000	206	19,800	274	23,000
I G split,					72	189		333	24,000	262	22,000	132	25,000
Total,					280	170		498	139,200		130,840	848	144,170
Coal Brook Mine, South, No. 1,	Fan,	4	17		36			339	12,200	375	15,000		
West, No. 2,					90			171	15,400	455	18,200		
North, No. 3,					50			300	15,000	488	24,400		
East, No. 1,					63			714	45,000	250	12,000		
East, No. 2,					82			761	55,000	250	10,000		
Total,					126	84						1,200	100,800

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

COLLIERIES.	Ventilation—Natural, Furnace, or Fan.	Number of openings.	Diameter of fan in feet.	Size of furnace in feet.	Size of inlet in square feet.	Size of outlet in square feet.	Number of headings.	NOVEMBER. Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Dunn Mines, North-East split,	Fan,	2	15	.....	98	100	...	....	24,570	395	18,960	....	26,580
South split,		...	...	.....	.....	.....	...	....	26,400	449	21,540	....	26,500
Total,		...	...	.....	.....	.....	...	520	50,970	....	40,500	531	53,080
Dodge Mines, B split,	Double furnace, Fan,	2	...	96	67½	132.70	...	466	31,450	221	13,260	....	.....
C split,			...	.....	.....	.....	...	....	.....	250	18,000	....	.....
E split,			...	.....	63	.....	...	868	54,676	249	17,112	....	.....
F split,			...	.....	.....	.....	...	....	.....	200	18,018	....	.....
H split,			...	.....	105	..	...	384	40,305	208	18,018	....	.....
R Y and A split,			...	.....	.....	.....	...	....	.....	181	17,724	....	.....
S split,			...	.....	.....	.....	...	....	.....	415	14,940	....	132,702
Total,		...	...	.....	210	.....	...	602	126,431	....	117,072	1,000	132,702
Diamond, No. 2, J. Meredith split,	Two fans,	2	14	.....	108	110		615	66,416	972	23,335	....	.....
David Richards' split,		...	...	.....	.....	.....	...	....	.....	452	15,836	....	.....
Stephen Evans' split,		...	...	.....	.....	.....	...	....	.....	271	14,623	....	.....
Morgan Morgan's split,		...	...	.....	.....	.....	...	....	.....	951	11,415	617	67,820
Total,		...	...	.....	.....	.....	...	....	66,416	....	65,209	617	67,820
Diamond Tripp Shaft, North split,	Two fans,	2	...	.....	193	.....	...	430	82,960	429	40,850	....	.....
South split,		...	...	.....	.....	224	...	....	.....	482	41,314	373	83,740
Total,		...	...	.....	.....	.....	...	....	82,960	....	82,164	....	83,740
Dickson Shaft, West split,	Fan,	2	12	.....	90	80	...	209	18,850	....	.....	....	.....
East split,		...	...	.....	48	.....	...	472	22,680	....	.....	....	.....

North Heading Slope split,										77	3,240		
Wells' Heading Slope split,										188	16,900		
Line Heading Slope split,										257	14,380		
Total,								41,530		34,520	805	64,380	
Eddy Creek, No. 1, Slope split,	Fan,	2	20		35	100	176	6,160	187	5,050			
Second split,					20		405	8,110	182	7,270			
Third split,					42		346	14,540	203	10,010			
West Fourth split,					27		330	8,910	330	8,910			
North Fifth split,					41		237	9,720	127	5,060			
North Sixth slip,					45		240	10,800	831	8,618			
East Seventh split,					64		275	17,600	314	12,450	1,830	183,018	
Total,					240		316	75,840		57,363	1,830	183,018	
Eaton Mines,	Fan,	2	14		84	64	582	48,850	517	24,800	765	48,960	
Edgerton Mine, L. H. Gangway,	Furnace,	2		48	140		168	23,540	162	16,220			
South,					77	202			177	13,600	117	23,800	
Total,								23,540				23,800	
Erie Shaft Plane Heading,	Fan,	2	17½		120	100	377	45,210	192	16,100	761	67,120	
Greer's,									219	13,180			
Sullivan's,									174	8,510			
Smalicomer's,									247	13,860			
Total,								45,210		51,650		67,120	
Fair Lawn, Rafferty's Heading,	Fan,	2	14		72	87	633	45,600	630	22,625			
Visgor's,									533	22,400	513	44,600	
Total,								45,600		45,025		44,600	
Filer's Slope, N. E. Gangway,	Fan,	2	14		87		459	39,960	422	17,640			
West,						72			339	20,360	565	40,870	
Total,								39,960		38,000		40,870	
Forest City, North split,	Fan,	2	16		96		550	52,850	183	9,876			
South,						100			338	20,374	620	62,000	
Total,								52,850		30,250		62,000	
Glendale, No. 3 Heading,	Furnace,	5		30	48	64	196	8,240	175	6,300			
No. 2,					42		224	9,380	188	8,100	292	18,720	
Total,													

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

COLLIERIES.	Ventilation—Natural, Furnace, or Fan.	Number of openings.	Diameter of fan in feet.	Size of furnace in feet.	Size of inlet in square feet.	Size of outlet in square feet.	Number of headings.	NOVEMBER. Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Greenwood Shaft, No. 1 split,	Fan,	2	14	.....	60	108	...	291	17,500	269	10,750	178	19,200
Shaft, No. 2 split,	.....	...	...	.....	60	108	...	183	11,400	205	8,200	124	13,400
Shaft, No. 3 split,	.....	...	...	.....	40	48	...	185	7,400	180	7,200	160	7,600
Tunnel split,	Furnace,	2	...	80	90	70	...	289	26,000	326	13,750	317	24,300
Slope,	Furnace,	2	...	80	70	60	...	271	19,000	191	11,500	353	21,200
No. 12, drift, split,	Furnace,	2	...	72	65	70	...	206	13,400	236	8,500	203	14,200
Total,	.....	...	...	.....	.....	.....	...	.....	.....	.....	.....	.....	.....
Green Ridge, South H, No. 1,	Fan,	2	12	.....	72	55	...	128	9,210	127	8,399	175	9,610
North H, No. 2,	.....	...	...	.....	66	98	...	132	10,700	137	9,820	109	10,740
South H, No. 3,	.....	...	...	.....	75	60	...	216	16,226	231	13,844	272	16,320
Total,	.....	...	...	.....	.....	.....	...	....	36,136	....	32,063	....	36,670
Grassy Island, South split,	Fan,	2	12	.....	126	96	...	610	67,910	256	15,380	....	.....
North split,	.....	...	...	.....	.....	.....	...	.....	.....	281	16,890	700	68,140
Total,	.....	...	...	.....	.....	.....	...	....	.....	....	.....	....	.....
Grassy Island, North, No. 1,	Fan,	2	20	.....	54	.....	...	307	16,575	387	15,000	....	.....
North, No. 2,	.....	...	...	.....	60	.....	...	336	20,200	537	21,490	....	.....
Slope,	.....	...	...	.....	40	.....	...	252	10,100	234	9,845	....	.....
Slope, No. 1,	.....	...	...	.....	70	.....	...	350	24,535	388	19,025	....	.....
Slope, No. 2,	.....	...	...	.....	39	.....	...	305	11,900	252	10,100	....	.....
South,	.....	...	...	.....	65	84	...	315	20,500	314	19,460	1,249	106,890
Total,	.....	...	...	.....	140	.....	...	....	103,810	....	94,920	....	106,890

Holden Shaft, gangway A, Top vein,	Fan,	2	25		66			490	32,340	365	28,105		
Gangway B, Top vein,					96	77		205	19,680	165	17,160	705	54,285
Gangway A, Bottom vein,					147			150	22,050	155	18,445		
Gangway B, Bottom vein,					147	110		155	22,785	195	19,110	395	43,450
Total,									96,855		82,820		97,735
Hyde Park, Jones' gangway,	Double furnace,			96	78			678	52,925	421	16,845		
Edwards' gangway,										515	16,480		
Mosier gangway,										108	2,910		
Thomas' gangway, Rock vein,					96			345	23,180	195	12,315		
Lunney's gangway, Rock vein,					140	120				209	3,130	693	83,190
Total,									76,105		51,680		83,190
Jermyn, No. 1, East split,	Fan,	2	17		48			310	14,875	228	13,650		
Slope, No. 1, split,					72			307	22,120	214	15,400		
Slope, No. 2, split,					72			233	16,760	145	10,425		
South split,					70	120		736	51,515	329	23,625		108,240
Total,									105,270		63,100	902	108,240
Jermyn, No. 2, Slope,	Natural,	4			60	100		808	48,500	546	32,800	505	50,460
Jermyn, No. 4, Shaft,	Fan,	2	20										
Thomas Alsop's gangway,					100	100		1,047	104,725	201	14,300	1,058	105,795
John Nichoson's gangway,										201	14,100		
William Kelly's gangway,										207	12,810		
John Hawk's gangway,										167	11,860		
William Clark's gangway,										130	9,140		
Total,									104,725		62,210		105,795
Leggitt's Creek Shaft, Diamond vein,	Fan,	2	20										
North head of split,					39			316	12,320	204	12,245		12,410
East head of split,					39			316	12,340	204	12,260		12,400
Shaft, 14 ft. vein,													
East heading, South side,					81			150	12,150	144	11,640		12,200
East heading, No. 2, South side,					78			146	11,350	144	11,200		11,400
South heading, South side,					35			343	12,000	264	11,850		12,350
River heading, South Side,					36			150	5,450	84	5,440		5,450
East heading, North side,					39			316	12,320	152	12,150		12,350
West heading, North side,					37			335	12,400	163	12,200		12,450
North heading, North side,					38			350	13,300	171	13,000		13,400
Total,						90			103,630		101,985	1,160	104,410
Lackawanna Coal Company, North heading,	Fan,	2	20		140	100		110	15,432	164	13,800	154	15,432
South heading,					72	72		237	17,040	240	14,430	238	17,140
West heading,					70	100		230	16,140	177	13,650	163	16,270
Total,									48,612		41,880	488	48,842

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

COLLIERIES.	Ventilation—Natural, Furnace, or Fan.	Number of openings.	Diameter of fan in feet.	Size of furnace in feet.	Size of inlet in square feet.	Size of outlet in square feet.	Number of headings.	NOVEMBER. Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Meadow Brook Tunnel,									44,070				44,770
Counter gangway,	Furnace,	2		64	48	36		453	21,760	275	19,840	610	21,980
Lower gangway,	Furnace,			36	72	36		313	22,310	289	20,780	633	22,790
Total,									44,070		40,620		44,770
Meadow Brook Shaft,	Fan,	2	14										
Two lower gangways, east,										184	14,730		
Main gangway and counter, east,					63			543	34,170	205	16,410	950	66,540
Counters at head of plane,										291	20,780		
West gangway from shaft,					168	70		290	32,110	113	9,130		
Total,									66,280		61,050		66,540
Mount Pleasant Mines,	Fan,		14										
Slope and drift,		2			112	81		236	26,450			353	28,560
Rock vein tunnel,										206	12,380		
Straight heading,										180	11,420		
First foot,										121	4,360		
Total,									26,450		28,160		28,560
Manville Mines, straight heading,	Fan,	2	20		140	90		666	93,290	212	17,820	1,257	113,160
Matt. Riley's heading,	Fan,		15	Not wo	rking.					160	8,960		
Collins heading,										112	10,500		
Firey Hill heading,										70	4,480		
Powell's heading,										185	13,300		

Matthews heading,										239	15,750		
Burns heading,										212	14,400		
Total,									93,290		85,210		113,100
Marvine Mines, Diamond,	Fan,	2	20		61			351	21,420	280	18,450		24,000
East split, 14 ft. vein,					60			400	24,000	264	19,800		25,000
West split, 14 ft. vein,					60			393	23,600	174	13,910		24,280
Plane split, 14 ft. vein,					66			362	23,900	259	20,200		26,100
Slope No. 1, 14 ft. vein,					42			550	23,100	275	19,850		22,500
Slope No. 2, 14 ft. vein,					58			360	20,880	247	17,280		21,600
Total,					210	105		652	136,900		109,490	1,366	143,480
National Shaft and Slope,	Fan,	2	14										
Slope, gangway east,										264	11,870		
Slope, gangway west,					117			306	35,760	287	14,380		
No. 3 vein,						88				116	8,360	761	66,930
Shaft, gangway east,										231	13,890		
Shaft, gangway east,					198			152	30,160	199	14,350		
Total,									65,920		62,850		66,930
No. 1 Shaft, Carbondale, Slope No. 1,	Fan,	2	17		46			533	24,500	371	14,860		
Slope, No. 2.					36	46		486	17,480	361	13,200	1,413	65,000
Total,									41,980		28,060		65,000
No. 3 Shaft, Carbondale, Split, No. 1,	Fan,	2	17		48			350	16,790	207	8,280		
Split, No. 2,					72			443	31,920	275	19,880		
Split, No. 3,					40	84		299	11,960			741	62,240
Total,					73			831	60,670		28,160		62,240
Old Forge Shaft, East heading,	Fan,	2	17½		72			223	16,075	173	10,390		16,980
West heading,					108			141	15,220	168	10,100		16,040
Waters' heading,					70			251	17,600	169	10,170		18,300
Cranston's heading,					60			91	5,450	117	4,700		6,010
Total					156	120		348	54,345		35,360	479	57,330
Oxford Shaft, A F split,	Fan,	2	14							490	29,400		
B split,										412	29,640		
C split,										467	28,000		
D split,					112	84		1,070	119,840	431	31,920	1,430	120,120
Total,									119,840		118,960		120,120
Pyne Shaft, David Powell's heading,	Fan,	2	12						15,300	357	19,260		
David Harris' heading,									34,250	394	15,750		
William Reddle heading,					36					114	7,430		
William Roberts' heading,					90			501	45,120	253	19,730		

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

COLLIERIES.	Ventilation—Natural, Furnace, or Fan.	Number of openings.	Diameter of fan in feet.	Size of furnace in feet.	Size of intlet in square feet.	Size of outlet in square feet.	Number of headings.	NOVEMBER. Velocity of air current per minute at inlet.	Number of cubic feet passing in at inlet per minute.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Pine Shaft, David Powell's heading—*Continued:*													
William Lauder heading,	Fan,	...	...	.....	54	105	...	....	.....	404	22,600	913	95,680
William Davids' heading,	.....	...	...	.....	80	87	...	168	13,470	419	12,560	169	14,730
Thomas Griffiths heading,	.....	...	...	.....	90	10½	...	87	7,860	130	7,200	966	10,140
Total,	.....	...	...	.....	140	100	...	829	116,000	....	104,530	1,205	120,550
Pancoast Mines, Diamond West,	Fan,	2	15	.....	.....	.....	...	....	25,060	561	19,071	} ...	55,077
East,	.....	...	...	.....	.....	.....	...	....	24,871	521	18,748		
Clark Vein,	.....	...	...	.....	.....	.....	...	....	26,372	545	19,084	} ...	58,415
Slope,	.....	...	...	.....	.....	.....	...	....	27,010	331	19,876		
Total,	.....	...	...	.....	170	124	...	608	103,313	....	76,779	915	113,492
Pine Brook split A,	Double fan,	2	17½	.....	154	.....	...	349	29,980	313	28,460	226	33,880
Split B,	.....	...	...	.....	.....	91	...	893	89,260	542	48,840	854	93,890
Split C,	.....	...	...	.....	.....	.....	...	308	34,520	303	33,960	324	35,640
Split D,	.....	...	...	.....	.....	.....	...	Clark's	vein, old	work	ings.	568	51,120
Total,	.....	...	...	.....	.....	133	...	....	153,760	....	111,260	1,228	163,410
Pierce,	Fan,	2	12	.....	50	64	...	1,300	65,000	870	140,000	1,250	80,000
Powderly Tunnel split,	Fan,	2	17	.....	55	.....	...	409	22,475	381	22,097	....	22,386
Slope split,	.....	...	...	.....	57	.....	...	422	24,050	493	23,184	....	23,894
East split,	.....	...	...	.....	52	.....	...	286	14,875	238	14,296	....	14,374
West split,	.....	...	...	.....	60	.....	...	398	23,875	383	22,978	....	23,496
North-East split,	.....	...	...	.....	40	.....	...	303	12,135	301	12,049	....	12,112
Total,	.....	...	...	.....	70	80	...	1,391	97,410	....	94,604	1,208	96,262

Richmond Slope split,	Fan,	2	9		48	60		344	16,500	298	12,500	290	17,400
Spring Brook,	Steam jet,	2			48	60		262	12,600	61	3,400	227	13,600
Sibley,	Fan,	2	15		90	70		367	33,000	410	17,200	497	34,800
Sloan split A,	Fan,	2	12		90	72		820	73,335	456	18,250	831	59,817
Split B,										256	17,008		
Split C,										198	9,914		
Split E,										206	16,528		
Split K,										163	10,784		
Split X Z,					90	70		278	25,012	260	13,012	581	40,710
Total,					120	100		825	98,847		85,496	1,005	100,527
Stark Slope split,	Fan,				65	60		135	8,730	188	7,915	146	8,745
Shaft No. 13, Main Road intake,	Fan,	2	17½		91			848	44,100				
West Level.					70			205	14,328	172	10,320		
West Slope heading,										305	19,800		
East Slope,										268	16,100		
Outlet at fan,						108						515	55,614
Total,									58,428		46,220		55,614
Shaft No. 2, Dunmore, top vein,	Furnace,	2		27	84	62		232	19,500	237	14,250	326	20,240
Bottom,	Natural,	2			50	50		184	9,180	142	7,120	184	9,220
Total,									28,680		21,370		29,460
Shafts Nos. 3 and 4, Dunmore, intake,	Fan,								52,600				
No. 3, top vein,					72	60		148	10,300	163	9,800	179	10,780
No. 3, bottom,					60	60		205	12,300	170	11,900	210	12,600
No. 4, top,					60	70		348	20,600	231	20,200	298	20,880
No. 4, bottom,					60	70		156	9,400	112	9,180	137	9,580
Total,									52,600		51,080		53,840
Shaft No. 5, Dunmore,	Fan,	2	17½										
First vein, South-West side,					60	40		175	10,500	150	7,500	542	22,500
North-East,					60			192	11,500	140	7,000		
Second, South-West side,					60	50		133	8,000	117	7,000	340	17,000
North-East,					60			141	8,500	125	7,500		
Third, South-West side,					60	60		133	8,000	140	7,000	316	19,000
North-East,					60			175	10,500	133	8,000		
Fourth Vein,					60	55		200	12,000	210	10,500	245	13,500
Total,					156	120		442	69,000		51,500	600	72,000

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

COLLIERIES.	Ventilation—Natural, Furnace, or Fan.	Number of openings.	Diameter of fan in feet.	Size of furnace in feet.	Size of inlet in square feet.	Size of outlet in square feet.	Number of headings.	NOVEMBER. Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Spencer's main heading,	Fan,	2	14	.....	60	72	...	483	28,980	637	28,700	419	30,000
Slope,		...	...	.....	36	40	...	113	4,060	109	3,920	103	4,140
Total,		...	...	.....	152	80	...	217	33,040	....	32,240	427	34,140
Taylor, J split,	Two fans,	2	14	.....	96	.....	...	248	23,760	232	22,275	....	.....
R split,		...	...	.....	45	.....	...	620	27,900	242	23,265	....	.....
B split,		...	...	.....	96	.....	...	265	25,440	256	24,600	....	.....
G split,		...	...	.....	88	.....	...	160	14,000	147	13,000	....	.....
S split,		...	...	.....	96	.....	...	206	19,800	226	18,855	....	.....
H split,		...	...	.....	80	96	...	284	22,770	280	21,285	1,615	155,020
Total,		...	...	.....	.....	.....	...	....	133,670	....	123,280	....	155,020
Taylor Drift, M split,	Fan,	2	12	.....	54	72	...	463	25,000	282	24,000	....	.....
.....	.....	...	...	.....	35	.....	...	460	14,000	377	13,200	600	43,200
Total,		...	...	.....	.....	.....	...	....	39,000	....	37,200	....	43,200
Von Storch, 14 ft. vein,	Two fans,	2	20	.....	.....	.....	...	....	.....	....	.....	....	.....
Foot intake,		...	17½	.....	72	70	...	203	14,640	172	11,200	268	13,800
North intake,		...	...	.....	60	64	...	292	17,500	128	9,000	300	19,200
Diamond vein, plane side,		...	...	.....	60	72	...	277	16,600	137	8,200	347	25,000
Diamond vein, rock side,		...	...	.....	49	49	...	190	9,300	130	7,500	171	8,400
Clark vein, North side,		...	...	.....	60	70	...	723	43,400	231	17,300	658	46,100
Clark vein, North split,		...	...	.....	.....	.....	...	....	.....	286	18,600	....	.....
Clark vein, South side,		...	...	.....	80	80	...	510	40,800	366	26,400	591	47,300
Clark vein, new split,		...	...	.....	6	.....	...	....	.....	333	20,000	....	.....
Total,		...	...	.....	140	109	...	1,016	142,240	....	118,200	1,512	164,800

White Oak, first lift,	Fan,	2	17	.....	50	.....	...	1,190	59,400	444	21,320	....	.....
Second lift,	.....	...	...	.....	.....	56	...	....	.....	695	37,500	....	61,500
Total,	.....	...	...	.....	50	100	...	1,190	59,400	....	58,820	615	61,500
White Oak Tunnel, South split,	Furnace,	...	...	64	60	55	...	380	19,820	204	12,260	....	.....
East split,	.....	...	...	.....	48	.....	...	116	5,580	115	4,820	....	30,180
Total,	.....	...	...	.....	60	81	...	423	25,400	....	17,080	249	30,180
Keystone, foot of plane,	Furnace,	...	...	60	60	60	...	362	21,617	422	20,272	368	22,103
Manway,	.....	...	...	.....	50	64	...	409	20,405	400	19,225	316	20,210
Total,	.....	....	....	.....	.....	.....	...	....	42,022	....	39,497	....	42,313

Note.—There are in the First District 63 fans, 11 furnaces, 1 steam jet, and one by natural means.

TABLE No. IV.—*List of serious and non-fatal accidents reported to the Inspector now including all of Lackawanna and a portion of Wayne and Susquehanna year ending 31st day of*

No.	Date.	Names.	Age.	Colliery where Accident Occurred.	Nationality.
1	Jan. 7	Frank Conway, . .	52	Grassy Island Mines, D. & H., Olyphant borough,	Irish, ...
2	12	John Harn, ...	30	Green Ridge Slope, O. S. J., Dunmore borough, .	Irish, ...
3	13	John Maloney, . . .	16	Green Ridge Slope, O. S. J., Dunmore borough, .	American, .
4	16	James Thomas, . .	18	National Breaker, W. C. & Co., Twentieth ward, Scranton.	Welsh, . . .
5	Feb. 4	Edward Day, ...	13	Brisbin Mines, D. L. & W., Third ward, Scranton,	Irish, ...
6	7	William R. Jones, .	45	Continental Mines, D. L. & W., Lackawanna twp.,	Welsh, . . .
7	11	Thomas Culkin, . .	27	Cayuga Mines, D. L. & W.. Third ward, Scranton,	Irish, ...
8	Mar. 2	Lucas Ex, ...	35	Meadow Brook Tunnel, W. C. & Co., Twentieth ward, Scranton.	Polish, . . .
9	24	P. C. Moran, ...		No. 1 Shaft Mines, D. & H. C. Co., Carbondale city.	Irish, ...
10	25	Edward Saunders, .	16	Marvine Mines, D. & H. C. Co., First wd., Scranton,	English, . .
11	27	Michael Collins, . .	65	Diamond, No. 2, D. L. & W., Twenty-first ward, Scranton.	Irish, ...
12	28	Michael O'Hora, . .	48	Glendale Mines, G. C. Co., Lackawanna twp., . .	Irish, ...
13	28	Thomas Stevens, .	19	Greenwood Mines, P. A. C. Co., Lackawanna twp.,	American, .
14	28	William Lewis, . .	63	Eddy Creek Mines, D. & H., Olyphant borough, .	Welsh, . . .
15	Apr. 4	James Alexander, .	24	Spring Brook Mines, W. E. C., Lackawanna twp.,	Scotch, . . .
16	4	Frank Caswell, . .	42	Taylor Mines, D. L. & W., Lackawanna township,	English, . .
17	8	James Burns, . . .	30	Lucas Mines, U. D. Co., Second ward, Scranton, .	Irish, ...
18	15	John Alexander, . .	15	Shaft No. 13, Penna. C. Co., Old Forge township,	Scotch, . . .
19	18	Patrick Leo Davis, .	32	Bridge Mines, B. C. Co., Fourteenth wd., Scranton,	Irish, ...
20	23	Mike Malia, ...	15	Grassy Island Mines, D. & H., Olyphant borough,	American, .
21	24	Patrick Horan, . . .	20	Von Storch Mines, D. & H.. Second wd., Scranton,	Irish, ...
22	24	John McNulty, ...		Coal Brook Breaker, D. & H., Carbondale city, . .	American, .
23	May 16	David Phillips, . .	33	Bellevue Mines. D. L. & W., Lackawanna twp., .	Welsh, . . .
24	18	Griffith T. Thomas,	32	Capouse Mines, L. I. & C. Co., Twenty-first ward, Scranton.	Welsh, . . .
25	18	John Kelly, ...	16	Powderly Mines, D. H. & C. Co., Carbondale city,	American, .
26	21	James Burke, . . .	38	Gypsy Grove Mines, Penna. C. Co., Dunmore borough.	Irish, ...
27	25	John Reese, ...	16	Jermyn, No. 4, J. Jermyn, Dickson City borough,	American, .
28	June 17	Peter Gillooley, . .	40	Mauville Mines, D. & H. & D. L. & W., Thirteenth ward, Scranton.	Irish, ...
29	July 2	John Muir, ...		Powderly Slope, D. & H. C. Co., Powderly slope,	Scotch, . . .
30	3	Owen Martin, . . .	20	Shaft No. 7, Penn. C. Co., Jenkins township, . . .	Irish, ...
31	10	Michael Honahoe, .	19	Jermyn, No. 4, J. Jermyn, Dickson City borough,	American, .
32	15	Miles King, ...	70	Shaft No. 6, Penna. C. Co., Jenkins township, . .	Irish, ...
33	24	Bryan Quinn, . . .	45	Shaft No. 13, Penna. C. Co., Old Forge township,	Irish, ...
34	25	Edward Laird, . . .	23	Shaft No. 13, Penna. C. Co., Old Forge township,	American, .
35	27	William Prosser, .	19	Eddy Creek Mines, D. & H., Olyphant borough, .	Welsh, . . .
36	28	John Weisenflue, .	23	Taylor Mines, D. L. & W., Lackawanna township,	German, . .
37	Aug. 4	John Duck, ...	16	Jermyn, No. 4, J. Jermyn, Dickson City borough,	English, . .
38	7	Thomas Mulloy, . .	15	Fair Lawn Mines, F. L. C. Co., Seventh ward, Scranton.	American, .
39	11	William B. Davis, .	36	Eddy Creek Mines, D. & H., Olyphant borough, .	Welsh, . . .
40	20	James Ford, ...	30	Pancoast Mines, Penna. C. Co., Dickson City borough.	Irish, ...
41	26	Thomas Gibson, .	16	Hyde Park Mines, D. L. & W., Fifth wd., Scranton,	Irish, ...
42	29	Edward Hughes, . .	30	Law Shaft Mine, Penna. C. Co., Pittston township,	Welsh, . . .
43	Sept. 3	Cornelius Dolan, .	44	National Mines, W. C. & Co., Twentieth ward, Scranton.	Irish, ...
44	9	John P. Ryan, . . .	24	Greenwood Slope, Penn. C. Co., Lackawanna twp.,	American, .
45	25	Patrick Finnegan, .	45	Twin Shaft, Butler C. Co., Pittston borough, . . .	Irish, ...
46	28	David Howell, . . .	62	Pyne Shaft, D. L. & W., Lackawanna township, .	Welsh, . . .
47	Oct. 2	Daniel R. Thomas,	59	Taylor Mines, D. L. & W., Lackawanna township,	Welsh, . . .
48	5	Thomas Loughney,	30	Shaft No. 10, Penna. C. Co., Hughestown bor., .	Irish, ...
49	7	Patrick Sloan, . . .	45	Diamond, No. 2, D. L. & W., Twenty-first ward, Scranton.	Irish, ...
50	12	Patrick O'Hora, . .	60	Shaft No. 5, Penna. C. Co., Dunmore borough, .	Irish, ...
51	16	John Hollen, ...	15	Pyne Mines, D. L. & W., Lackawanna township, .	American, .
52	22	Lewis Powell, . . .	19	Archbald Mines, D. L. & W., Lackawanna twp., .	Welsh, . . .
53	31	Joseph Walsh, . . .	17	Leggett's Creek Mines, D. & H., First ward, Scranton.	American, .
54	Nov. 7	Patrick McCormick,	30	Grassy Island Mine, D. & H., Olyphant borough,	Irish, ...
55	9	Bartley Mullen, . .	52	Jermyn, No. 2 Mine, D. & H., Jermyn borough, .	Irish, ...
56	11	Walter Gibson, . .	14	Mt. Pleasant Mines, W. T. S., Fourteenth ward, Scranton.	American, .
57	12	F. W. Brod, ...	26	Green Ridge Slope, O. S. J., Dunmore borough, .	American, .
58	13	Christ. Koefine, . .	51	Sibley Breaker, E. McC. & Co., Old Forge township.	German, . .

of the Eastern District of the Wyoming Coal Fields, Luzerne and Carbon counties, counties, State of Pennsylvania and the cause as shown by his investigations, for the December, A. D. 1885.

Occupation.	Nature of Accident.	No. injured.
Miner, . . .	Two ribs fractured and back hurt; fall of top coal,	1
Laborer, . .	Injured; shot through pillar from next chamber,	2
Driver, . . .	Seriously injured; caught by rope at head of plane in mine,	3
Oilman, . .	Arm fractured; fell off trestle works while snow-balling,	4
Door-boy, .	Arm fractured; run over by mine car,	5
Propman, .	Severely injured; fall of rock,	6
Miner, . . .	Leg fractured and otherwise injured; fall of bony coal,	7
Laborer, . .	Right hand fractured; fall of top coal,	8
Miner, . . .	Leg fractured; hit by coal flying from blast which exploded while John Byrne was tamping hole,	9
Driver, . . .	Leg fractured; hit by mine car,	10
Laborer, . .	Right leg fractured; fall of bony coal,	11
Miner, . . .	Leg fractured; fall of roof,	12
Headman, .	Leg fractured; caught under car at head of slope,	13
Miner, . . .	Left leg fractured; fell on ice going from mines to get some props,	14
Miner, . . .	Ankle mashed; fall of middle rock between coal,	15
Miner, . . .	Arm fractured; fall of top coal,	16
Laborer, . .	Leg fractured, and otherwise injured about the face; fall of roof,	17
Driver, . . .	Right thigh fractured; caught between trip of mine cars and mine track,	18
Laborer, . .	Severely burned on hands and face; explosion of gas,	19
Driver, . . .	Jaw fractured; kicked by a mule,	20
Runner, . .	Arm fractured by explosion of gas,	21
Slate-picker,	Leg fractured; caught between belt and pully in breaker,	22
Miner, . . .	Leg fractured; piece of coal fell out of face of chamber and rolled on it,	23
Miner, . . .	Right leg fractured; caught between prop and piece of coal which rolled on it.	24
Runner, . .	Left leg fractured; fell off a trip of cars, which ran over him,	25
Miner, . . .	Ankle severely crushed; fall of black slate which slipped off coal,	26
Driver, . . .	Collar-bone fractured; caught between car and pillar,	27
Miner, . . .	Seriously injured about head, will lose one eye; premature explosion of blast,	28
Miner, . . .	Left leg and arm broken; fall of rock,	29
Laborer, . .	Leg broken above knee; caught between car and track,	30
Laborer, . .	Right leg fractured and body bruised; fall of bony coal,	31
Culm-man, .	Leg fractured; fell, and a piece of rock slipped off, got on his leg, breaking it,	32
Miner, . . .	Leg fractured below the knee; fall of top coal,	33
Miner, . . .	Leg fractured at ankle; fall of top coal,	34
Laborer, . .	Leg fractured above the knee; fall of bony and top coal,	35
Footman, .	Leg fractured and foot injured; car jumped the track, run against his leg, breaking it,	36
Driver, . . .	Right leg broken; fell in front of a trip of cars,	36
Door-boy, .	Arm fractured; caught by cars,	38
Miner, . . .	Severely injured; explosion of gas,	39
Miner, . . .	Left leg and arm broken; fall of top bench of coal,	40
Door-boy, .	Seriously injured; runaway car knocked door on top of him dislocating his ankle,	41
Miner, . . .	Severely burned; explosion of gas,	42
Miner, . . .	Leg and arm broken; fall of top coal,	43
Carpenter's helper.	Leg broken between knee and ankle by wire-rope on slope,	44
Comp'y man,	Collar-bone and rib broken; trip of cars ran against him on slope,	45
Footman, .	Two ribs broken and shoulder out of joint; car ran against him,	46
Miner, . . .	Leg fractured at knee; fall of top coal,	47
Miner, . . .	Ankle fractured; hit by a piece of coal flying from a premature blast,	48
Laborer, . .	Foot crushed, amputated afterward; fall of roof above the top coal,	49
Dumper, . .	Wrist broken; got hoisted by lever, in falling wrist was broken,	50
Driver, . . .	Leg broken above the ankle; caught between two rails, throwing him in front of car,	51
Footman, .	Foot mangled; caught under hoisting carriage in shaft,	52
Driver, . . .	Right leg crushed; fell in front of car, which ran over him,	53
Miner, . . .	Shoulder-blade fractured; fall of roof,	54
Miner, . . .	Leg and two fingers fractured; fall of roof,	55
Door-boy, .	Leg fractured; fall of roof,	56
Laborer, . .	Leg fractured; fall of roof,	57
Laborer, . .	Right leg fractured; caught in breaker machinery,	58

TABLE IV.—

No.	DATE.	Names.	Age.	Collieries where Accident Occurred.	Nationality.
60	Nov. 27	Henry Webb, . . .	16	Spring Brook Mine, W. E. C., Lackawanna township.	American, .
61	Dec. 2	Edward Mullen, . .	16	Central Mine, D. L. & W., Fifteenth ward, Scranton.	Irish, ...
62	5	Thomas Williams, .	15	Oxford Mines, D. L. & W., Fifth ward, Scranton,	Welsh, . . .
63	30	Martin Gannon, . .	49	Von Storch Mines, D. & H., Second ward, Scranton.	Irish, ...

NOTE.—There were 53 serious accidents in the First Mine District in 1885.

NATURE OF ACCIDENTS.

There were 37 persons had their legs fractured.
There were 7 persons had their arms fractured.
There were 9 persons otherwise seriously injured.

Total, . . 53

Continued.

Occupation.	Nature of Accident.	No.
Driver, . . .	Leg broken; fell in front of car, ...	59
Driver, . . .	Left arm broken; got tangled in harness and fell in front of car, ...	60
Driv's helper	Left leg nearly cut off; fell in front of car. Leg amputated afterward, ...	61
Laborer, . .	Breast-bone broken; squeezed between car and pillar in mine, ...	62

TABLE No. V.—*List of slight accidents reported to the Inspector of the Eastern of Lackawanna and a portion of Wayne and Susquehanna counties, State of day of Decem*

Number.	Date.	Name.	Age.	Colliery where Accident Occurred.	Nationality.
1	Jan. 2	Henry Burke, . .	58	Eddy Creek Mines, D. & H. C. Co., Olyphant bor.,	German. . .
2	3	Patrick Langan, .	17	Taylor Mines, D. L. & W. R. R. Co., Lackawanna tp.	Irish, . . .
3	5	Ed. Engleman, .	13	Coal Brook Breaker, D. & H. C. Co., Carbondale city,	American, .
4	6	James Craig, . . .	49	Midland Tunnel, D. & H. C. Co , Fell township, . .	Irish, . . .
5	6	John Smith, . . .	13	Capouse Mines, L. I. & C. Co., Twenty-first ward, Scranton.	English, . .
6	12	David Jaevens, .	43	Lucas Mines, U. C. Co., Second ward, Scranton, . .	English, . .
7	12	John Cole, ...	16	Phœnix Mines, P. C. Co., Marcy township, ...	English, . .
8	12	Bernard Dempsey,	23	Phœnix Mines, P. C. Co., Marcy township, ...	Irish, . . .
9	19	Reese Edwards, .	26	Diamond Mines, D. L. & W , Twenty-first ward, Scranton.	Welsh, . . .
10	23	Chas. Chambers,	29	Brisbin Mines, D. L. & W., Third ward, Scranton, .	American, .
11	26	Alex. McDonald,	14	Brisbin Mines, D. L. & W., Third ward, Scranton, .	Scotch, . . .
12	27	W. McNicholson,	45	Continental Mines, D. L. & W., Lackawanna twp., .	Irish, . . .
13	28	David Harris, . .	35	Von Storch Mines, D. & H., Second ward, Scranton,	Welsh, . . .
14	28	David Powell, . .	23	Von Storch Mines, D. & H , Second ward, Scranton,	Welsh, . . .
15	29	Michael Kearns, .	20	Mosier Mines, B. C. Co., Hughestown borough, . .	Irish, . . .
16	Feb. 4	William Koch, . .	21	Shaft, No. 5, Pennsylvania C. Co., Dunmore bor , .	American, .
17	4	Patrick Thornton,	23	Taylor Mines, D. L. & W., Lackawanna township, .	Irish, . . .
18	6	William Rule, . .	42	Eddy Creek Mines, D. & H., Olyphant borough, . .	English, . .
19	6	Timothy Hogan, .	16	Barnum Mines, Penn'a C. Co., Marcy township, . .	American, .
20	10	Jas. Richardson,	34	Central Mines, D. L. & W., Fifteenth ward, Scranton,	English, . .
21	11	Thos. W. Evans,	14	Taylor Mines, D. L. & W., Lackawanna township, .	Welsh, . . .
22	13	John Gaughan, .	50	Brisbin Mines, D. L. & W., Third ward, Scranton, .	Irish, . . .
23	14	John Haskins, . .	14	Dodge Mines, D. L. & W., Lackawanna township, .	American, .
24	16	John McHugh, .	45	Barnum Mines, Penn'a C. Co., Marcy township, . .	Irish, . . .
25	16	James Higgins, .	13	Barnum Mines, Penn'a C. Co., Marcy township, . .	American, .
26	24	Jas. Flannigan, .	41	Shaft, No. 7, Penn'a C. Co., Jenkins township, . . .	Irish, . . .
27	25	John McAllister,	53	Erie Mines, H. C. & I. Co., Glenwood borough, . .	Irish, . . .
28	26	Jos. Beaumaster,	21	Shaft, No. 2, Penn'a C. Co., Dunmore borough, . .	American, .
29	27	Edward Jordan, .	15	Ontario Mines, L. V. C. Co , Pittston township, . .	American, .
30	Mar. 2	Frank Lloyd, . .	14	Central Mines, D. L. & W., Fifteenth ward, Scranton,	Welsh, . . .
31	7	Thomas Donohoe,	23	Lucas Shaft Mines, U. C. Co., Second ward, Scranton,	Irish, . . .
32	10	James Gahagan, .	23	Von Storch Mines, D & H., Second ward, Scranton,	Irish, . . .
33	13	Martin Boa, . . .	27	Fair Lawn Mines, F. C. Co , Seventh ward, Scranton,	English, . .
34	18	Peter Higgins, . .	30	National Mines, W. C. & Co., Twentieth ward, Scranton.	Irish, . . .
35	18	John Jennings, .	43	National Mines, W. C. & Co., Twentieth ward, Scranton.	Irish, . . .
36	18	Patrick Walsh. .	35	National Mines, W. C. & Co., Twentieth ward, Scranton.	Irish, . . .
37	23	William James, .	13	Capouse Mines, L. I. & C. Co., Twenty-first ward, Scranton.	American, .
38	25	John Banks, ...	. .	Marvine Mines, D. & H., First ward, Scranton, . .	English, . .
39	26	James Bamrick, .	60	Phœnix Mines, P. C. Co., Marcy township, ...	Irish, . . .
40	26	John Donohoe, .	26	Phœnix Mines, P. C. Co., Marcy township, ...	Irish, . . .
41	28	William Heath, .	26	Sloan Mines, D. L. & W., Lackawanna township, . .	English, . .
42	30	Anthony McNulty,	16	Barnum Mines, Penn'a C. Co., Marcy township, . .	American, .
43	April 2	James Cawley, . .	16	Manville Mines, D. H. & D. L. & W., Thirteenth ward, Scranton.	Irish, . . .
44	4	Michael Caffrey,	23	Eaton Mines, J. S. & Co., Archbald borough, ...	American, .
45	6	Frank Beech, . .	. .	White Oak Breaker, D. & H., Archbald borough, . .	Polish, . . .
46	6	Thomas Harman,	19	Sibley Mines, Elliot, McClure & Co., Old Forge twp.,	American, .
47	8	Mich. O'Rourke,	38	Halstead Mines, D. L. & W., Marcy township, . . .	Irish, . . .
48	9	John Walsh, . . .	50	Tunnel, No. 1, Penn'a C. Co., Pittston township, .	Irish, . . .
49	10	James Edmonds,	55	Erie Mines, H. C. & I. Co., Glenwood borough, . .	Welsh, . . .
50	10	John Leno, ...	15	Fair Lawn Breaker, F. L. C. Co., Seventh ward, Scranton.	Hungarian,
51	13	James McNulty, .	45	Slope, No. 4, Penn'a C. Co., Jenkins township, . .	Irish, . . .
52	15	Martin Flannery,	36	Fair Lawn Mines, F. L. C. Co., Seventh ward, Scranton.	Irish, . . .
53	15	Fred. Browning,	14	Pancoast Mines, P. C. Co., Dickson City borough, .	English, . .
54	21	George White, . .	32	Greenwood Mines, P. A. C. Co., Lackawanna twp ,	English, . .
55	22	James Walsh, . .	27	Lawn Shaft Mines, Penn'a C. Co., Pittston township,	Irish, . . .
56	22	James Arthur, . .	60	Bellevue Breaker, D. L. & W., Lackawanna twp., .	Irish, . . .
57	23	John Ruddy, . . .	40	Von Storch Mines, D. & H., Second ward, Scranton,	Irish, . . .
58	May 2	Edmund Hoskins,	50	Dodge Mines, D. L. & W., Lackawanna township, .	Welsh, . . .
59	7	Michael McNulty,	. .	Marvine Mines, D. & H., First ward, Scranton, . . .	Irish, . . .
60	8	William Bessford,	. .	Slope, No. 2, Penn'a C. Co., Jenkins township, . .	English, . .
61	8	Robert Walker, .	23	Slope, No. 2, Penn'a C. Co., Jenkins township, . .	Scotch, . . .

district of the Wyoming coal fields, Luzerne and Carbon counties, now including all Pennsylvania, and the cause as shown by his investigations, for the year ending 31st ber, A. D. 1885.

Occupation.	Nature or Cause of Accident.	Number.
Laborer, . .	Slightly injured; stepped on the carriage after signal was given and fell off,	1
Driver, . . .	Slightly injured; squeezed between two cars,	2
Slate picker,	Bad flesh wound in right arm; caught between pully and belt in breaker,	3
Miner, ...	Cut quite severely about face and one of his eyes injured; premature explosion of blast,	4
Driv's helper	Cut on face and leg bruised; kicked by a mule,	5
Miner, ...	Slightly injured while in the act of re-standing a prop; fall of roof came on him,	6
Driver, . . .	Bad flesh wound on arm; caught while coupling cars,	7
Laborer, . .	Slightly burned; explosion of gas,	8
Miner, ...	Severely cut about face; set fire to his straw; blast exploded immediately,	9
Mechanic, . .	Finger mashed by pump,	10
Driver, . . .	Slightly injured; kicked by a mule,	11
Miner, ...	Severe flesh wound on arm; fall of coal,	12
Miner, ...	These men were working together, and while in the act of putting a loaded car on	13
Laborer, . .	track they set a blower on fire which slightly burned them,	14
Laborer, . .	Slightly injured on head and hip; fall of black rock,	15
Laborer, . .	Slightly injured; fall of roof,	16
Laborer, . .	Foot slightly injured; fall of coal,	17
Miner, ...	Slightly injured; fall of roof,	18
Driver, . . .	Leg slightly injured; caught between two mine cars,	19
Laborer, . .	Injured severely; fall of black rock between top and bottom coal,	20
Driver, . . .	Slightly injured; squeezed between a door in mines and a car,	21
Miner, ...	Severely injured; fall of top coal,	22
Driver, . . .	Two fingers cut off while in the act of unhitching his mule from a trip of cars,	23
Miner, ...	Severely injured by blast; went back to face of chamber when shot went off and caught him,	24
Door boy, . .	Slightly injured on foot while in the act of getting off truck,	25
Mine carpent.	Injured slightly; caught between the top rails of mine cars,	26
Miner, ...	Slightly injured; fell off hoisting carriage,	27
Miner, ...	Injured slightly; explosion of loose powder in keg,	28
Driver, . . .	Two fingers crushed while in the act of spragging a mine car,	29
Door boy, . .	Leg slightly injured; caught under a trip of cars in mine,	30
Laborer, . .	Slightly injured; hit by flying coal from blast,	31
Laborer, . .	Leg slightly fractured; hit by collar which fell by car striking it,	32
Laborer, . .	Leg slightly injured; hit by flying coal from blast,	33
Miner, ...	These three men were warned by the fire-boss that there was fire-damp in their work-	34
Laborer, . .	ing place, but they disregarded his instructions not to go there. They went into	35
Laborer, . .	the place and set fire to the gas and got burned; not dangerously,	36
Door boy, . .	Slightly injured; caught between empty cars in mine,	37
Laborer, . .	Slightly injured; hit his foot with a pick he was breaking coal with,	38
Miner, ...	Injured slightly; explosion of gas,	39
Laborer, . .		40
Miner, ...	Severely hurt on back and head; fall of roof,	41
Driver, . . .	Leg slightly injured; caught between two cars in mine,	42
Driver, . . .	Slightly injured; kicked on head by mule,	43
Miner, ...	Slightly injured; Peter Gillespie was tamping hole when cartridgo exploded, killing himself and injuring Caffrey,	44
Laborer, . .	Shoulder dislocated; struck by culm car on culm dump,	45
Laborer, . .	Foot slightly injured; caught between bumpers of railroad cars at breaker chutes,	46
Miner, ...	Slightly injured about back and sides; fall of top coal,	47
Culm man, .	Slightly injured on ankle; hit by light mine cars,	48
Miner, ...	Injured slightly about body and leg; fall of top coal,	49
Slate picker,	One small toe taken off; caught in cog wheel in breaker,	50
Miner, ...	Slightly injured on instep; fall of black rock,	51
Miner, ...	Injured slightly; fall of rock roof,	52
Driver, . . .	Collar bone fractured and bruised about the hips; mine car run on him,	53
Miner, ...	Hip dislocated; fall of under coal,	54
Carpenter, .	Slightly burned on hand and face; explosion of gas,	55
Laborer, . .	Cut slightly on head; hit by culm car on trestling,	56
Laborer, . .	Slightly burned on face and hands; explosion of gas,	57
Miner, ...	Injured slightly; fall of coal,	58
Miner, ...	Injured on head; fell off ladder in mines, a distance of about ten feet,	59
Miner, ...	Very slightly injured on foot; fall of slate; walked home,	60
Miner, ...	Very slightly injured on hand and back; fall of black rock,	61

TABLE No. V—

Number.	Date.	Name.	Age.	Colliery where Accident Occurred.	Nationality.
62	May 15	Robert Murray, .	37	Erie Mines, H. C. & I. Co., Glenwood borough. . .	Irish, . . .
63	16	William Evans, .	16	Taylor Mines, D. L. & W., Lackawanna township, .	Welsh, . . .
64	19	August Frieze, . .	16	Capouse Mines, L. I. & C. Co., Twenty-first ward, Scranton.	German, . .
65	20	Patrick Kennedy, . .		Spring Brook Mines, W. E. C., Lackawanna twp., .	Irish, . . .
66	23	Gideon Simmons,	24	Ontario Colliery, L. V. C. Co., Pittston township, .	English, . .
67	25	Austin Herraghty,	22	Bellevue Breaker, D. L. & W., Lackawanna twp., .	Irish, . . .
68	June 2	William Horan, .	19	Leggitt's Creek Mines, D. & H., First ward, Scranton,	Irish, . . .
69	3	J. H. Hablett, . .	52	Fairmount Mines, F. C. Co., Pittston township, . .	Welsh, . . .
70	4	David Michael, .	54	Von Storch Mines, D. & H., Second ward, Scranton,	Welsh, . . .
71	8	Philip Andreas, .	25	Mount Pleasant Mines, W. T. S., Fourteenth ward, Scranton.	Hungarian,
72	8	Patrick Duffy, . .	50	Pierce Mines, P. C. Co., Archbald borough, ...	Irish, . . .
73	17	Tally Williams, .	25	Manville Mines, D. & H. & D. L. & W., Thirteenth ward, Scranton.	Welsh, . . .
74	20	Edward Harris, .	60	Barnum Mines, Penn'a C. Co., Marcy township, . .	Welsh, . . .
75	20	Griffith Lewis, . .	13	Brisbin Mines, D. L. & W., Third ward, Scranton, .	Welsh, . . .
76	23	Mark Sullivan, .	46	Pyne Mines, D. L. & W., Lackawanna township, . .	Irish, . . .
77	23	Joseph Evans, . .	14	Leggitt's Creek Mines, D. & H., First ward, Scranton	Welsh, . . .
78	26	Henry Morgan, .	17	Capouse Mines, L. I. & C. Co., Twenty-first ward, Scranton.	Welsh, . . .
79	July 9	Griffith Pierce, .	19	Capouse Mines, L. I. & C. Co., Twenty-first ward, Scranton.	Welsh, . . .
80	16	Anthony McHugh,	68	Central Mine, D. L. & W., Fifth ward, Scranton, .	Irish, . . .
81	20	Michael Bloom, .	27	Lucas Mine, U. C. Co., First ward, Scranton, . . .	Polish, . . .
82	28	Thos. Reddington	30	Shaft, No. 9, Penn'a C. Co., Pittston borough, . . .	Irish, . . .
83	28	Bryan Duffy, . .	45	Dodge Mines, D. L. & W., Lackawanna township, .	Irish, . . .
84	30	Joseph Snyder, .	17	Capouse Mines, L. I. & C. Co., Twenty-first ward, Scranton.	German, . .
85	30	John Brady, . . .	38	Shaft, No. 8, Penn'a C. Co., Hughestown borough,	Irish, . . .
86	31	Patrick Munley, .	32	Filer's Slope, G. & Thomas Winton, ...	Irish, . . .
87	Aug. 1	John McCue, . .	28	Shaft, No. 6, Penn'a C. Co., Jenkins township, . . .	Irish, . . .
88	3	Patrick Quinnan,	50	Meadow Brook Tunnel, W. C. & Co., Twentieth ward, Scranton.	Irish, . . .
89	10	Thomas Quinnan,	15	Shaft, No. 10, Penn'a C. Co., Hughestown borough,	American, .
90	12	Alexander Petrie,	17	Pancoast Mines, P. C. Co., Dickson City borough, .	American, .
91	14	John Davis, . . .	40	Consolidated Mines, H. C. & I. Co., Pleasant Valley borough.	English, . .
92	14	David Aubry, . .	44	Von Storch Mines, D. & H., Second ward, Scranton,	Welsh, . . .
93	14	John K. Jones, .	38	Von Storch Mines, D. & H., Second ward, Scranton,	Welsh, . . .
94	17	Anthony Loftus, .	15	Barnum Mines, Penn'a C. Co., Marcy township, . .	American, .
95	17	John Lilly, ...	45	Continental Mine, D. L. & W., Lackawanna twp., .	Irish, . . .
96	17	John Gallagher, .	30	Continental Mine, D. L. & W., Lackawanna twp., .	Irish, . . .
97	18	Benjamin Harris,	23	Grassy Island Mine, G. I. C. Co., Winton boro., . .	Welsh, . . .
98	19	John Sullivan, . .	12	Pierce Breaker, P. C. Co., Winton borough, ...	American, .
99	19	Thos. McFadden,	35	Fair Lawn Mines, F. L. C. Co., Seventh ward, Scranton.	Irish, . . .
100	20	Joseph Maxwell,	16	Cayuga Mine, D. L. & W., Third ward, Scranton, .	Irish, . . .
101	25	John Williams, .	15	Capouse Mine, L. I. & C. Co., Twenty-first ward, Scranton.	Welsh, . . .
102	25	Frank Healy, . .	25	Eaton Mines, J. S. & Co., Archbald borough, ...	American, .
103	25	Steven Bennett, .	26	Eaton Mines, J. S. & Co., Archbald borough, ...	American, .
104	25	Daniel T. James,	44	Continental Mine, D. L. & W., Lackawanna twp., .	Welsh, . . .
105	27	John E. Termant,	28	No. 2 Slope Mine, Penn'a C. Co., Jenkins township,	American, .
106	28	Thomas Cranston,	16	No. 13 Shaft Mine, Penn'a C. Co., Old Forge twp., .	American, .
107	Sept. 4	Thomas Connors,	18	Spring Brook Breaker, W. E. C., Lackawanna twp.,	Irish, . . .
108	7	Frank Bernice, .	15	Eddy Creek Mines, D. & H., Olyphant borough, . .	Scotch, . . .
109	7	George McNulty, . .		Coal Brook Mines, D. & H., Carbondale city, . . .	Irish, . . .
110	10	James Welsh, . .	35	Barnum, No. 1, Mines, Penn'a C. Co., Marcy twp.,	English, . .
111	10	Frederick Honig,	36	Edgerton Mine, E. C. Co., Jermyn borough, ...	American, .
112	11	Patrick Moran, .	15	Continental Mines, D. L. & W., Lackawanna twp., .	Irish, . . .
113	14	Thos. Armstrong,	23	Shaft, No 6, Penn'a C. Co., Jenkins township, . . .	American, .
114	16	Wm. Griffiths, . .	19	Continental Mines, D. L. & W., Lackawanna twp , .	Welsh, . . .
115	17	John Shaffer, . . .		Marvine Mines, D. & H., First ward, Scranton, . .	German, . .
116	18	Benjamin Jones,	36	Meadow Brook Mines, W. C. & Co., Twentieth ward, Scranton.	Welsh, . . .
117	19	Steven Bowen, .	25	Central Mine, D. L. & W., Fifth ward, Scranton, .	Welsh, . . .
118	19	Patrick Gibbons,	40	Amity Mines, D. L. & W., Lackawanna township, .	Irish, . . .
119	19	John Keefe, . . .	17	Elmwood Mine, F. C. Co., Pittston township, . . .	American, .
120	21	Daniel Mahon, . .	16	Eaton Mines, J. S. & Co., Archbald borough, . . .	American, .
121	23	Richard Moffat, .	17	Bridge Mines, B. C. Co., Fourteenth ward, Scranton,	Irish, . . .
122	23	W. Carter, ...	21	Taylor Mines, D. L. & W., Lackawanna township, .	Welsh, . . .
123	23	John B. Davis, .	42	Brisbin Mine, D. L. & W., Third ward, Scranton, .	Welsh, . . .
124	23	John Buhallo, . .	42	Brisbin Mine, D. L. & W., Third ward, Scranton, .	Austrian, . .

Continued.

Occupation.	Nature or Cause of Accident.	Number.
Miner,	Slightly injured on head; fall of roof,	62
Driver,	Slightly injured; squeezed between cars,	63
Driver,	Small bone of wrist fractured; caught between cars,	64
Miner,	Slightly injured; fall of black rock,	65
Laborer,	Two toes cut off; fall of rock,	66
Laborer,	Head badly cut; fell off top of house railroad car under breaker chutes,	67
Runner,	Slightly injured on back; was unhitching rope when he fell in front of a trip of cars,	68
Mine boss,	Head and hands burned slightly; explosion of gas,	69
Miner,	Head injured; thought his shot missed fire; went back to face; shot went off and caught him,	70
Culm driver,	Injured slightly; run over by loaded mine car outside,	71
Miner,	Slightly injured; fall of coal,	72
Laborer,	Slightly injured; fall of top coal,	73
Miner,	Injured slightly; fall of black rock,	74
Door boy,	Left arm slightly injured; caught while jumping on loaded trip of cars,	75
Miner,	Slightly injured; fall of blacksmith coal,	76
Driver,	Small bone of arm broken; hit by door which he was opening in mines,	77
Driver,	Fingers squeezed; caught by wheel of car,	78
Runner,	Leg slightly injured; caught between cars,	79
Laborer,	Two ribs broken; fell on a rail,	80
Laborer,	Slightly injured; fall of coal and rock,	81
Miner,	Ankle bone fractured; fall of black rock,	82
Miner,	Bad cuts about head and arm; premature blast,	83
Driver,	Slightly injured; fall of bony coal,	84
Miner,	Injured slightly; fall of soapstone,	85
Miner,	Hand crushed while taking out block from front of car wheel in mine,	86
Miner,	Slightly injured; fall of coal,	87
Laborer,	Slightly injured; fall of top slate,	88
Outside du'er	Leg bruised; caught by car on culm dump,	89
Car runner,	Slightly injured; car jumped track and caught him,	90
Miner,	Back severely hurt; fall of coal,	91
Miner,	Both these men slightly injured; explosion of gas,	92
Miner,		93
Driver,	Two fingers broken; caught between sprag and car,	94
Miner,	Both men injured slightly; premature explosion of blast,	95
Laborer,		96
Miner,	Head slightly cut; fall of rock,	97
Slate picker,	Slightly injured; fell off trestle while playing,	98
Miner,	Burned slightly about neck and arms; explosion of gas,	99
Driver,	Injured about hips; squeezed between cars,	100
Driver,	Slightly injured; squeezed between car and pillar,	101
Miner,	Both men slightly injured; fall of six-inch coal in face of chamber; both were able to walk home,	102
Laborer,		103
Miner,	Severe cut on right side of forehead; fall of coal,	104
Miner,	Slightly injured; premature blast,	105
Driver,	Injured slightly; kicked by a mule,	106
Head man,	Slightly injured; foot hurt at head of plane,	107
Driver,	Slightly cut on face; kicked by a mule,	108
Laborer,	Injured slightly; fall of rock roof,	109
Miner,	Badly cut on face; fall of under coal,	110
Miner,	Knee joint slightly injured; fall of coal,	111
Driver,	Kicked by mule in abdomen,	112
Miner,	Slightly injured; premature explosion of blast,	113
Runner,	Bitten on shin bone by a mule,	114
Miner,	Hit on back of head by prop falling on him,	115
Miner,	Burned on face and hands; powder explosion,	116
Laborer,	Injured; kicked on head by mule,	117
Laborer,	Kicked by mule on arm, fracturing it,	118
Driver,	Slightly injured; fall of roof,	119
Door boy,	Injured slightly; caught between car and pillar,	120
Driver,	Back injured; fell in front and got caught by mine car,	121
Driver boss,	Finger taken off while in the act of taking drag off mine car,	122
Miner,	Both these men slightly injured; fall of top coal,	123
Laborer,		124

TABLE No. V.—

No.	DATE.	Names.	Age.	Collieries where Accident Occurred.	Nationality.
125	Sep. 25	Wm. G. Williams,	20	Brisbin Mine, D. L. & W., Third ward, Scranton, .	Welsh, . . .
126	25	Patrick Roland, .	35	Lucas Breaker, L. C. Co., Second ward, Scranton, .	Irish, ...
127	28	George Reed, . .	26	Leggett's Creek Shaft, D. & H., First wd., Scranton,	Welsh, . . .
128	30	Patrick Riley, . .	55	Brisbin Mine, D. L. & W., Third ward, Scranton, .	Irish, ...
129	Oct. 2	Edward Supple, .	20	Taylor Mines, D. L. & W., Lackawanna township, .	Irish, ...
130	2	Jas. Corcoran, . .	60	White Oak Mines, D. & H., Archbald borough, . . .	Irish, ...
131	2	Martin Noon, . .	15	White Oak Mines, D. & H., Archbald borough, . . .	American, .
132	3	John Malia, . . .	16	White Oak Mines, D. & H., Archbald borough, . . .	American, .
133	5	Edward Mullen, .	22	Jermyn, No. 4, J. Jermyn, Dickson City borough, .	Irish, ...
134	7	Michael Kenny, .	17	Pierce Mines, P. C. Co., Archbald borough, ...	American, .
135	8	Michael Ruane, .	26	Shaft No. 5, Penn'a C. Co., Jenkins township, . . .	Irish, ...
136	12	Martin C. Kearney	35	Fair Lawn Mines, F. C. Co., Seventh wd., Scranton,	Irish, ...
137	13	James Williams, .	. .	Coal Brook Mines, D. & H., Carbondale City, . . .	Welsh, . . .
138	14	Dom'k Needham,	37	Continental Mines, D. L. & W., Lackawanna twp., .	Irish, ...
139	14	John Leibtreau, .	36	Continental Mines, D. L. & W., Lackawanna twp., .	German, . .
140	16	Michael Kelly, . .	19	Cayuga Mine, D. L. & W., Third ward, Scranton, .	Irish, ...
141	16	August Barber, .	. .	Grassy Island Mines, D. & H., Olyphant borough, .	German, . .
142	23	William Morgan,	27	Dodge Mines, D. L. & W., Lackawanna township, .	Welsh, . . .
143	28	James Vanston, .	42	Mt. Pleasant Mines, W. T. S., Fourteenth ward, Scranton.	English, . .
144	29	Thomas Murphy,	16	Mt. Pleasant Mines, W. T. S., Fourteenth ward, Scranton.	American, .
145	31	Wm. Maloney, . .	18	No. 1 Shaft, D. & H. C. Co., Carbondale city, . . .	American, .
146	Nov. 1	Thos. Armstrong,	50	Shaft No. 5, Penn'a C. Co., Dunmore borough, . . .	Irish, ...
147	2	Thos. D. Phillips,	38	Cayuga Mine, D. L. & W., Third ward, Scranton, .	Welsh, . . .
148	6	Mich. Mortimer,	48	Fair Lawn Mines, F. C. Co., Seventh wd., Scranton,	Irish, ...
149	12	John Gallagher, .	50	Green Ridge Slope, O. L. J., Dunmore borough, . .	Irish, ...
150	18	John Cawley, 1st,	48	Capouse Mine, L. I. & C. Co., Twenty-first ward, Scranton.	Irish, ...
151	19	James Roach, . .	22	Brisbin Mines, D. L. & W., Third ward, Scranton, .	English, . .
152	19	James Benedict, .	26	Brisbin Mines, D. L. & W., Third ward, Scranton, .	Hungarian, .
153	20	Pat'k A. Harran,	30	Bellevue Shaft, D. L. & W., Lackawanna township,	Irish, ...
154	20	Thomas Moran, .	25	Capouse Mines, L. I. & C. Co., Twenty-first ward, Scranton.	Irish, ...
155	20	Michael Gaughan,	50	Green Ridge Slope, O. S. J., Dunmore borough, . .	Irish, ...
156	24	Lewis Jones, . . .	40	Oxford Mines, D. L. & W., Fifth ward, Scranton, .	Welsh, . . .
157	27	Ed. Carter, ...	45	Taylor Mines, D. L. & W., Lackawanna township, .	Welsh, . . .
158	27	Edward Dean, . .	38	Filer's Slope, G. T. & Co., Winton borough, ...	Irish, ...
159	27	John Moran, . . .	28	Filer's Slope, G. T. & C.., Winton borough, ...	Irish, ...
160	Dec. 7	Thomas Walsh, .	19	Continental Mines, D. L. & W., Lackawanna twp., .	Irish, ...
161	8	Henry Weable, .	14	Taylor Mines, D. L. & W., Lackawanna township, .	German, . .
162	11	Mike Pryal, . . .	21	Shaft No. 5, Penn'a C. Co., Dunmore borough, . . .	Irish, ...
163	14	Matthew White, .	15	Grassy Island Mines, G. I. C. Co., Winton borough,	American, .
164	14	John Jones, . . .	17	Lackawanna C. Co. Mine, Blakeley borough, ...	Welsh, . . .
165	15	Thos. Murray, . .	17	Grassy Island Mines, D. & H., Olyphant borough, .	Irish, ...
166	16	James Cluces, . .	27	Von Storch Mines, D. L. & W., Second wd., Scranton,	Irish, ...
167	16	James Gilbride, .	28	Von Storch Mines, D. L. & W., Second wd., Scranton,	Irish, ...
168	22	Michael Cawley, .	55	Diamond Mines, D. L. & W., Twenty-first ward, Scranton.	Irish, ...
169	24	G. W. Canterbury,	59	Capouse Mines, L. I. & C. Co., Twenty-first ward, Scranton.	American, .
170	30	James Moran, . .	. .	Elk Creek Mines, T. Brennan, Fell township, . . .	Irish, ...

NOTE.—There were 138 slight accidents in the First Mine District in 1885.

Continued.

Occupation.	Nature of Accident.	No.
Laborer, . .	Burned on hands and face; cartridge exploded while handling it,	125
Carpenter, .	Shoulder dislocated; jacket caught while putting belt on pully,	126
Laborer, . .	Slightly injured between shoulders; fall of top rock,	127
Culm man, .	Injured slightly; hit by loaded car,	128
Laborer, . .	Ankle slightly injured; fall of top coal,	129
Miner, . . .	Face cut; fall of six-inch bony coal,	130
Driver, . . .	Foot slightly hurt; mule stepped on it,	131
Runner, . .	Head injured by piece of coal falling off a car,	132
Laborer, . .	Back and leg bruised; fall of bell from roof,	133
Driver, . . .	Kicked on head by mule,	134
Laborer, . .	Slightly injured on back; fall of roof,	135
Miner, . . .	Injured slightly; premature blast,	136
Miner, . . .	Slightly injured; fall of roof,	137
Miner, . . .	Rib broken and otherwise bruised; fall of roof,	138
Laborer, . .	Slightly injured, same fall,	139
Runner, . .	Thumb cut off; caught between bumpers of cars,	140
Co. man, . .	Knocked off track on runaway by trip of cars,	141
Miner, . . .	Injured, badly bruised about head and face; fall of roof,	142
Miner, . . .	Ankle slightly injured; fall of loose coal,	143
Driver, . . .	Slightly bruised on hips; caught between car and pillar; car jumped the track and caught him,	144
Laborer, . .	Injured slightly; caught between car and pillar,	145
Laborer, . .	Small bone of left leg broken; fall of roof,	146
Miner, . . .	Thumb cut off; fall of coal,	147
Miner, . . .	Leg slightly injured; shot missed fire twice; he thought it missed third time; going back got hit with coal,	148
Laborer, . .	Ankle dislocated; caught between track and piece of rock that fell on it,	149
Miner, . . .	Slightly injured; fall of roof,	150
Laborer, . .	Slighly injured by fall of rock,	151
Laborer, . .	Slighly injured by fall of rock,	152
Miner, . . .	Injured by premature blast,	153
Miner, . . .	Slightly injured by fall of piece of coal,	154
Miner, . . .	Injured slightly; premature blast,	155
Miner, . . .	Collar-bone broken while in the act of lifting a car,	156
Miner, . . .	Slightly injured; explosion of gas,	157
Miner, . . .	Slightly injured; premature blast,	158
Miner, . . .	Burned slightly; premature blast,	159
Headman, .	Injured; jammed between loaded car and gate at surface landing of shaft,	160
Door-boy, .	Injured; squeezed between loaded car and roof,	161
Laborer, . .	Slightly injured; squeezed between car and prop,	162
Driver, . . .	Injured; kicked by mule on head,	163
Driver, . . .	Injured; fall of roof,	164
Laborer, . .	Slightly injured; fall of roof,	165
Miner, . . .	Injured slightly; premature blast,	166
Laborer, . .	Injured slightly; premature blast,	167
Miner, . . .	Leg and arm slightly injured; fall of slate,	168
Miner, . . .	Slightly injured; hit by prop falling on him,	169
Miner, . . .	Slightly injured; fall of top rock,	170

TABLE No. VI.—*List of accidents occurring in the mines of the First*

Number.	Date.	Names.	Age.	Colliery where Accident Occurred.	Nationality.
1	Jan. 2	Charles Clash, . . .	16	Barnum No. 2, Penna. Coal Co., Marcy township,	German, . . .
2	5	Peter Fulmer, . . .	33	Mo ier Mines, B. C. Co., Hughestown borough,	German, . . .
3	7	David Phillips, . . .	25	Bridge shaft, B. C. Co., Fourteenth ward, Scranton	Welsh, ...
4	8	Lewis T. Jones, . .	35	Tripps Air Shaft, D. L. & W., Twenty-first ward, Scranton, ...	Welsh, ...
5	20	James Cavanaugh,	23	Taylor Mines, D. L. & W., Lackawanna twp., . .	Irish, ...
6	Feb. 17	Reese Williams, . .	40	Von Storch Mines, D. & H., Second ward, Scranton, ...	Welsh, ...
7	Mar. 24	Owen R. Williams, .	40	Consolidated Mines, H. C. & I. Co., ...	Welsh, ...
8	24	John Byrne, ...	. .	No. 1 Shaft Mines, D. & H., Carbondale City, . .	Irish, ...
9	27	Michael Donnelly, .	50	Jermyn No. 4, Mines, J. J., Dickson City boro.,	Irish, ...
10	April 2	Thomas Bowen, . .	20	Lackawanna C. Co. Breaker, Blakely borough, .	American, . .
11	4	Peter Gillespie, . .	26	Eaton Mines, J. S. & Co., Archbald borough, . .	American, . .
12	9	James Short, ...	24	Marvine Shaft, D. & H., First ward, Scranton, .	English, . . .
13	14	Ebenezer Moore, .	36	Law Shaft, Penna. C. Co., Pittston township, . .	American, . .
14	16	M. Cunningham, .	40	Consolidated Mines, H. C. & I. Co., ...	Irish, ...
15	21	James McGowen, .	45	White Bridge Tunnel, D. & H., Carbondale City,	Irish, ...
16	21	Michael Connors, .	15	do. do. do.	American, . .
17	23	David Daniels, . . .	65	Von Storch Mines, D. & H., Second ward, Scranton	Welsh, ...
18	23	John Jenkins, . . .	35	Brisbin Mines, D. L. & W., Third ward, Scranton,	Welsh, ...
19	May 14	Robert Giles, . . .	32	Halstead Mines, D. L. & W., Marcy township, .	English, . . .
20	June 5	Martin Durkin, . .	35	Central Mines, D. L. & W., Fifteenth ward, Scranton, ...	Irish, ...
21	16	Robert Graham, . .	35	Old Forge Mines, Penna. C. Co., Old Forge twp.,	Scotch, ...
22	23	Michael Lewells, .	30	Jermyn No. 4, Mines, J. J. Dickson, City boro.,	Polish, ...
23	26	James W. Davis, . .	36	Capouse Mines, L. I. & C. Co., Twenty-first ward, Scranton, ...	Welsh, ...
24	July 2	Collins Mathews, .	45	Brisbin Mine, D. L. & W., Third ward, Scranton,	Welsh, ...
25	13	Patrick Wells, . . .	48	White Oak Mines, D. & H., Archbald borough, .	Irish, ...
26	14	Edward Malot, . . .	42	Cayuga Mine, D. L. & W., Third ward, Scranton,	Irish, ...
27	14	John McGovern, .	60	Leggett's Creek Mines, D. & H., First ward, Scranton, ...	Irish, ...
28	18	James White, . . .	24	No. 13 Shaft Mine, Penna. C. Co., Old Forge twp.,	Scotch, ...
29	21	Joseph Knowles, .	. .	Barnum Shaft, Penna. C. Co., Marcy township.	
30	22	Henry Bryson, . . .	31	No. 14 Shaft, Penna. C. Co., Jenkins township, .	Scotch, ...
31	25	David Jones, ...	35	Gipsy Grove Mines, Penna. C. Co., Dunmore borough, ...	Welsh, ...
32	28	David James, . . .	29	Taylor Shaft Mines, D. L. & W. Lackawanna twp.,	Welsh, ...
33	29	James Walker, . . .	14	Dunmore Screens, Penna. C. Co., Dunmore boro.,	American, . .
34	31	Patrick Franklin, .	50	Tunnel No. 1, Penna. C. Co., Pittston township,	Irish, ...
35	Aug. 15	Michael Coggins, .	26	Sloan Mines, D. L. &. W., Lackawanna twp., . .	Irish, ...
36	31	James P. Delaney,	32	Shaft No. 6, Penna. C. Co., Jenkins township, .	American, . .
37	Sept. 2	Thomas Riley, . . .	50	Green Ridge Slope, O. S. J., Dunmore borough,	Irish, ...
38	3	Sidney Somers, . .	35	Shaft No. 5, Penna. C. Co., Jenkins township, .	American, . .
39	3	James Healy, . . .	20	do. do. do.	American, . .
40	3	Solon Corse, ...	50	Hyde Park Shaft, D. L. & W., Fifth ward, Scranton, ...	American, . .
41	7	Michael Purcell, . .	45	Shaft No. 11, Penna. C. Co., Jenkins township, .	Irish, ...
42	7	Daniel Haggerty, .	45	Spencer Mines, S. Bro.'s, Dunmore borough, .	Irish, ...
43	8	Thomas Lavell, . .	54	Leggett's Creek Mines, D. & H., First ward, Scranton, ...	Irish, ...
44	9	John Lyden, ...	21	Greenwood Slope, Penna. C. Co., Lackawanna township, ...	Irish, ...
45	15	William James, . .	60	Powderly Slope, D. &. H., Carbondale City, . .	Welsh, ...
46	18	Andrew Fagan, . .	24	Forest City Mine, H. C. & I. Co., Clifford twp.,	American, . .
47	19	Anthony Gownley,	50	Slope No. 4, Penna. C. Co., Jenkins township, .	Irish, ...
48	23	John McKinney. . .	34	Mt. Pleasant Mines, W. T. S., Fourteenth ward, Scranton, ...	Irish, ...
49	24	Patrick Gallagher, .	28	Law Shaft, Penna. C. Co., Pittston township, . .	Irish, ...
50	24	John Sullivan, . . .	45	No. 2 Diamond Shaft, D. L. & W., Twenty-first ward, Scranton, ...	Irish, ...
51	Oct. 1	William Morrisson,	25	Halstead Mine, D. L. & W., Marcy township, . .	Irish, ...
52	12	Hugh Devers, . . .	20	Tunnel No. 1, Penna. C. Co., Pittston township,	American, . .
53	24	Daniel Williams, . .	33	Lackawanna Coal Co. Mine, Blakely borough, . .	Welsh, ...
54	24	Morgan Roberts, .	27	do. do. do.	Welsh, ...
55	26	August Rouer, . . .	26	Bellevue Slope, D. L. & W., Lackawanna twp., .	German, . . .

Anthracite Mine District for the year ending December 31, 1885.

Occupation.	Widows.	Orphans.	Nature or Cause of Death.	Number.
Foot boy,	0	0	Killed; fell down the shaft from one vein to the other,	1
Miner,	1	2	Killed instantly; fall of top rock,	2
Machinist,	0	0	Killed; got knocked down the shaft by a piece of plank falling on him,	3
Shaft sinker,	1	0	Killed; fell out of hoisting bucket in new air shaft a distance of about 30 feet,	4
Laborer,	0	0	Killed; fall of top coal,	5
Brattice man,	0	0	Killed; was riding on car, T iron rail, caught his head between car rail and T iron, breaking his neck,	6
Miner,	0	0	Seriously burned; spark fell from lamp into loose powder in keg while in the act of making cartridge,	7
Miner,			Seriously burned; cartridge exploded while forcing it into hole with butt end of drill; died next day,	8
Miner,	1	4	Killed; fall of bony coal,	9
Laborer,	0	0	Killed; caught between car and one of the timber posts supporting breaker,	10
Miner,	1	2	Killed instantly; was tamping hole when cartridge exploded,	11
Miner,	0	0	Seriously injured; fall of checkered coal; died about 4 hours after,	12
Laborer,	0	0	Killed instantly; fall of top coal and roof,	13
Laborer,	1		Seriously injured on back; fall of top slate; not reported serious; died on 18th,	14
Miner,	1	8	Killed instantly; fall of roof,	15
Driver,	0	0	Killed instantly; fall of roof. Connors was taking an empty car into McGowan's chamber, when the roof fell and killed them both,	16
Brattice man,	0	0	Smothered; brattice fell on him while repairing it; caused by an explosion of gas,	17
Laborer,	0	0	Killed about 40 feet back from face on main road; fall of rock,	18
Machinist,	1	2	Killed instantly by runaway car on slope,	19
Miner,	1	1	Seriously injured; fall of rock; died 2 hours after,	20
Miner,	1	6	Killed instantly; fall of coal,	21
Laborer,	1	1	Killed almost instantly; fall of roof,	22
Miner,	1	6	Killed; fall of bony coal,	23
Laborer,	1	7	Killed instantly; fall of top coal; wife and seven children in Wales,	24
Laborer,	1	5	Killed instantly; fall of 18-inch coal,	25
Laborer,	1	5	Killed; fall of top coal,	26
Miner,	0	2	Seriously injured; fall of 6-inch bony coal at face of chamber; died on night of 18th,	27
Miner,	1	0	Killed; fall of roof,	28
			Reported slightly injured on Friday, 18th; died on 20th, as kidneys were injured; doctor thought he was slightly injured,	29
Miner,	1	4	Killed instantly; fell down shaft a distance of 265 feet; fall of bucket,	30
Miner,	1	2	Seriously injured; thought his blast missed fire; exploded while trying to remove the match,	31
Miner,	1	2	Killed; fall of blacksmith's bench of coal,	32
Slate picker,			Seriously injured; caught in pony rolls; died 10 hours after,	33
Laborer,	1	4	Seriously injured; fall of rock; was working alone and was under the rock for 6 hours; died next morning,	34
Laborer,	0	0	Killed; caught between carriage and side of shaft; fell to bottom, a distance of 275 feet,	35
Miner,	1	3	Killed by a piece of loose coal sliding off bottom bench, striking him on the back,	36
Miner,	1	5	Killed; fall of roof while in the act of barring down coal,	37
Miner,	0	0	Killed; fall of roof,	38
Laborer,	0	0	Killed; same fall,	39
Miner,	1	6	Killed; fall of coal while in the act of undermining it,	40
Miner,	1	8	Killed; fall of rock roof,	41
Miner,	1	6	Killed; fall of roof,	42
Miner,	1	2	Right leg broken; fall of middle bench of coal; died on morning of 17th,	43
Laborer,	0	0	Killed; hit by coal from blast in pillar fired in next chamber,	44
Miner,			Seriously injured; fall of top coal; died 9 o'clock same night,	45
Footman,	0	0	Killed; caught under hoisting carriage while crossing under it at foot of shaft,	46
Miner,	1	5	Killed; fall of rider coal and black rock,	47
Miner,	1	2	Killed; fall of top coal,	48
Miner,	0	0	Seriously injured; fall of roof; died same night,	49
Water bailer,	1	6	Killed; fall of top coal,	50
Laborer,	0	0	Seriously injured; fall of rock roof,	51
Laborer,	0	0	Killed; shot by blast through rib,	52
Miner,	0	0	Killed; fall of roof,	53
Laborer,	0	0	Killed; same fall,	54
Laborer,	1	1	Killed; fall of rock roof,	55

TABLE No. VI.

Number.	DATE.	Names.	Age.	Colliery where Accident Occurred.	Nationality.
56	Oct. 31	David Evans, ...	50	Holden Mine, D. L. & W., Lackawanna township,	Welsh, ...
57	Nov. 4	John Hogan, ...	58	Central Mine, D. L. & W., Fifth ward, Scranton,	Irish, ...
58	4	Patrick White, . . .	59	Central Mine, D. L. & W., Fifth ward, Scranton,	Irish, ...
59	6	Michael Dougherty,	44	Old Forge Mines, Penna. C. Co., Old Forge twp.,	Irish, ...
60	7	Patrick Toole, . . .	48	Greenwood Shaft, P. A. C. Co., Lackawanna township, ...	Irish, ...
61	11	William Saar, . . .	23	Shaft No. 5, Penna. C. Co., Dunmore borough, .	American, . .
62	13	John D. Griffiths, .	12	Jermyn No. 4, Breaker, J. J. Dickson, City boro.,	American, . .
63	16	John Quinn, ...	58	Coal Brook Mines, D. & H., Carbondale City, . .	Irish, ...
64	27	George Sherman, .	30	Capouse Mines, L. I. & C. Co., Twenty-first ward, Scranton, ...	American, . .
65	27	John Mahon, ...	27	Dickson Mine, D. & H. Co., First ward, Scranton,	Irish, ...
66	Dec. 7	John McCormick, .	60	Continental Mine, D. L. & W., Lackawanna twp.,	Irish, ...
67	14	William Simon, . .	60	Lackawanna Coal Co. Mine, Blakely borough, .	Welsh, ...
68	14	Henry Freegans, .	28	Jermyn No. - Mine, D. & H., Jermyn borough. .	English, . . .
69	17	Henry Williams, . .	51	Von Storch Mines, D. & H., Second ward, Scranton, ...	Welsh, ...
70	24	Lewis R. Evans, . .	55	Bellevue Slope, D. L. & W., Lackawanna twp., .	Welsh, ...
71	25	Richard Taylor, . .	25	North-Western Slope, N. W. C. Co., Fell twp., .	English, . . .
72	25	John Luke, ...	45	North-Western Slope, N. W. C. Co., Fell twp., .	Welsh, ...

NOTE.—Tables Nos. 1, 2, and 3. contain a list of the names of all persons killed and injured in and about the Anthracite Coal Mines in the Eastern District, up to the time the district got divided and a new mine inspector was appointed on October 26, 1885.

First District.

There was mined in the First District in 1885, 7,258,853.10 tons of coal.

There were 54 deaths in the First District; there was one death to every 134,423 tons of coal mined.

There were 31 widows in the First District; there was one widow to every 234,157 tons of coal mined.

There were 106 orphans in the First District; there was one orphan to every 68,480 tons of coal mined.

—*Continued.*

Occupation.	Widows.	Orphans.	Nature or Cause of Death.	Number.
Miner,	1	5	Reported slightly injured; fall of roof; died November 4.	56
Comp'y man,	1	. .	Both these men were seriously burned by an explosion of CH_4 gas; they were working on a gangway unloading a car of dirt, when a fall came in old chamber close to where they were working, displacing gas forcing	57
Comp'y man,	1	.	it on to their naked lights causing the explosion; White died on 5th and Hogan on the 6th,	58
Miner,	1	7	Killed; fall of black rock,	59
Footman,	1	5	Seriously injured; caught between hoisting carriage and side of shaft; died same evening,	60
Laborer,	0	0	Killed; fall of roof,	61
Slate picker,	0	0	Seriously injured; caught in breaker machinery; died same evening,	62
Miner,	0	0	Killed; fall of roof,	63
Miner,	1	3	Killed instantly; fall of roof,	64
Miner,	1	0	Killed instantly; fall of coal,	65
Outside h'dman	1	5	Killed; squeezed between loaded mine car and gate on surface landing of shaft,	66
Miner,	0	0	Killed instantly; fall of roof,	67
Laborer,	0	0	Killed; fall of roof,	68
Laborer,	0	0	Killed instantly; fall of roof,	69
Miner,	1	0	Killed; fall of roof,	70
Rockman,	1	1	Both these men were seriously injured by an explosion of giant powder; three holes missed going off after being tried twice from the battery; the chargeman, Taylor, was in the act of cleaning out the last hole,	71
Miner,	0	1	when the cartridge exploded; the accident occurred at 4 o'clock A. M., Taylor died at 7 o'clock A. M., and Luke at 4 o'clock P. M.,	72
	39	134		

Cause of Fatal Accidents in the First District in 1885.

Explosion of gas,	2	Equal to	3.70	Per cent..
Explosion of powder and blasts,	6	"	11.11	"
Falls of coal,	16	"	29.63	"
Falls of roof,	19	"	35.19	"
Machinery outside,	2	"	3.70	"
Falling down shafts,	3	"	5.55	"
Caught by hoisting carriage,	2	"	3.71	"
Miscellaneous, inside,	2	"	3.70	"
Miscellaneous, outside,	2	"	3.71	"
Total,	54		100.00	

TABLE V.—*Showing the grand total of employés, horses, mules, engines, pumps, boilers, and powder employed, tons of coal mined and shipped, fatal and non-fatal accidents, &c., in the First Anthracite Mine District, for the year ending December 31, 1885.*

NAME OF COUNTIES AND PARTS OF COUNTIES IN THE DISTRICT.	Total number of men employed.	Total number of boys employed.	Total number of horses and mules employed.	Total number of engines and pumps employed.	Total number of boilers employed.	Total number of kegs of powder consumed.	Total number of tons of coal produced.	Total number of tons of coal shipped.	Total number of fatal accidents.	Total number of non-fatal accidents.	Total number of times air measurements were taken.
Lackawanna county:											
Delaware, Lackawanna and Western Railroad Company,	3,963	1,770	888	183	294	55,569	2,104,111.16	1,997,757.11	15	.....	Fifty-two times a year.
Delaware and Hudson Canal Company,	3,543	1,435	561	123	174	51,950	1,864,442.07	1,647,274.17	14	.....	
Pennsylvania Coal Company,	923	350	135	39	47	19,118	657,345.00	621,716.00	6	.....	
Individual operators,	5,087	2,361	808	207	255	91,158	2,514,065.00	2,397,245.10	18	.....	
Total for Lackawanna county,	13,518	5,916	2,392	552	770	217,795	7,139,964.03	6,663,993.18	53	.....	
Susquehanna county,	153	63	30	7	7	4,308	84,559.07	83,163.13	1	.....	
Totals,	13,671	5,979	2,422	559	777	222,103	7,224,423.10	6,747,157.11	54	194	
Local coal sale mines,	204	15	36	8	6	1,202	33,534.00	.....	.....	.....	
Grand totals,	13,875	5,994	2,458	567	783	223,305	7,258,853.10	6,747,157.11	54	194	

SECOND DISTRICT

Of the Anthracite Coal Field.

Office of Inspector of Coal Mines,
Pittston, Pa., *March 9, 1886.*

To Honorable J. Simpson Africa,
Secretary of Internal Affairs.

Sir: I have the honor of presenting my first annual report as inspector of coal mines for the Second district of Luzerne and Sullivan counties, as required by section one, article two, of the act entitled "An act to provide for the health and safety of persons employed in and about the anthracite coal mines," approved the 30th day of June, 1885.

In my commission I was directed to assume the duties of the office October 26, 1885; therefore, my report as to accidents covers only that part of the year beginning October 26 and ending December 31, 1885.

Tables have been compiled enumerating the accidents which proved fatal, and those which did not prove fatal; also, tables showing the present state of ventilation in all the collieries, the number of days worked by each breaker, the number of persons employed in and around the mines, and the amount of coal produced from each colliery, together with other important statistics and useful information.

The number of lives lost during the above-stated period were eight, leaving five widows and sixteen orphan children. The number of accidents not proving fatal, were twenty-one; a few of those were of a very slight character and only caused a loss of a few days.

In my investigation into the causes of those accidents, I find that with due care a great many of them could be avoided. The miners, as a rule, get very careless in regard to their own safety; with proper care on their part, to see that everything is safe before starting and as they advance with their work, there would be less accidents to record. The causes, number, and per centum of fatal accidents are classified as follows:

From falls of roof and coal, ...	2	being	25	per cent.
From explosion of gas, ...	3	"	37½	"
From cars in the mines, ...	1	"	12½	"
By cars outside, ...	1	"	12½	"
By falling down shaft, ...	1	"	12½	"
Total, ...	8		100	

I learned from the inspectors of the First and Third districts, that the number of fatal accidents for the whole of 1885 were fifty-three, (53,) and the total production of coal during 1885 was 3,881,902 09 tons, which shows a production of 73,243.04 tons per life lost. The total number of persons employed during 1885 is 10,656, and the fatal accidents are equal to a little over 0.20 of one per cent, or one for every 201.05 of the whole number employed. The results of my investigation into the condition of the collieries, and a descriptive record of fatal accidents, are fully set forth in the report, to which you are most respectfully referred.

Very respectfully submitted,

Your obedient servant,

H. McDONALD,

Inspector of Coal Mines.

General Condition of the Collieries.

I entered upon the duties appertaining to the office of inspector, October 26, 1885, and immediately entered upon a tour of general inspection throughout the collieries of my district. The time being short before the close of the year, I was kept very busy trying to get around to them. In my examination of the different collieries of my district, I found them in comparatively good condition as compared with the requirements of the law. I found all the breakers having all the dangerous parts of their machinery fenced and boxed off; and here let me state that the officers of the several collieries, without one exception, were courteous and obliging to me in my investigation, and gave me all the needed information required. The dangers in the underground workings are much more difficult to remove, as each day's work places a different aspect on the workings. The miner's occupation is a very hazardous one, therefore, it requires them to be very cautious as they advance with their work, as a blast fired may leave a comparatively safe place a very dangerous one, so that every hour in the day the inside workings of a mine are changing for the safety or unsafety of the employés therein.

In going through the collieries of this district, I find the majority of them kept in good condition; the ventilation is good, and conducted to the face of the workings. The refuse of the mines is carefully kept back from the roads, and a strict discipline exercised, while others, I am sorry to say, do not give the same attention to ventilation, roads, or anything else in particular, only to get out all the coal they can. This, to me, is false economy on their part; if those bosses would give more attention toward furnishing their men with more pure, fresh air, while they are at work, (and right here let me say that, in most cases referred to, the companies have furnished ample means to provide the same,) and see that the roads are kept free from the refuse of the mine, timber, and water,

they would be fulfilling the requirements of the law, doing their duty toward their fellow-workmen, and removing the cause for a number of accidents in the mines.

Fatal Accident by Falling Down Shaft.

Accident, No. 13.—Laurence Murry, Irish, rock miner, aged thirty-five years, was fatally injured in the Forty Fort shaft, on November 28, 1885, and died from his injuries, December 17, 1885. He and three other workmen were repairing water-troughs in the pump shaft. Standing on plank platform across the shaft to get one of the troughs into place, it required one of the men to go below the platform to turn the trough. About six feet below the top platform there was a plank across the shaft, placed there about one year ago. While they were repairing the pump, Murry went down on this plank, and says he tested it and said it was all right. The men above passed one end of the trough down to him, and as the extra weight came on the plank, it broke in two, letting him fall about seventy-five feet down the shaft to another platform, which stopped him from going to the bottom.

Fatal Accidents by Falls of Roof and Coal.

Accident, No. 4.—Michael Flaherty, Irish, miner, aged sixty years, was instantly killed in shaft No. 6, Pennsylvania Coal Company colliery, Pittston, December 1, 1885. Flaherty was driving an entrance on right side of his chamber, and had holed the entrance that morning. After holing the entrance on right side, he started to drill a hole in the bottom bench, his partner going around to the chamber they were driving to, to make the entrance larger. When he got around to the entrance he heard the coal working. He called to Flaherty to get away, but the warning came too late, and a large piece of coal fell from a slip, off the side of the entrance, about a ton in weight, on him with the above result.

Accident, No. 6.—Laurence Grogan, Irish, miner, aged fifty years, was instantly killed in the Black Diamond colliery, Mill Hollow, December 4, 1885. He fired a blast, and knocked a prop out with the shot he fired, and while in the act of moving the coal to get his prop up again, a large piece of top rock came down on him, the rock being 8×6 feet, and six inches thick. Had he taken the precaution to examine his roof before going under it, in all probability the accident would not have occurred.

Fatal Accidents by Mine and Railroad Cars.

Accident, No. 24.—Robert Jeffry, water-bailer, aged twenty-seven years, was instantly killed in the Jackson drift, Bernice, Sullivan county, April 7, 1885. Having finished his day's work, he was waiting at the bottom of the chamber he had been working in, while the driver made up his loaded trip of cars, so he could go out after him with his water car so as to take it to another part of the mine so as to be in readiness for work on the morrow,

and the driver had brought up two loaded cars and was bringing a third car, and when a few feet from the other cars the driver unhitched his mule, leaving the loaded car to run and bump against the other two. While the car was thus coming in contact with the others, Jeffry put out his hand and caught hold of the coupling, and in trying to make the coupling while the car was moving, he extended his head between the cars, and was caught by the bumpers, crushing his skull, and causing instant death.

ACCIDENT, No. 1.—Patrick Golden, inside driver, aged seventeen years, was fatally injured in slope, No. 4, Pennsylvania Company, Pittston, November 5, 1885; after being taken home died in one hour and a half. There is a drift connected with this slope, and it was while he was coming out of this drift on his loaded cars that he was caught by the roof and dragged off, and the cars squeezed him, with the above result. It is supposed that his light went out, although he was only about one hundred feet from the mouth of drift and could see daylight.

ACCIDENT, No. 8.—Patrick Coolican, outside laborer, aged thirty-five years, was fatally injured at the outside chutes of shaft, No. 4, Pennsylvania Coal Company, November 12, 1885. Died from his injuries November 19, 1885. He was a loader of fine coal. He had loaded two cars. There was an empty lumber truck attached to them. He went behind the truck to shove them out from the chutes to other loaded cars. The man that works with him detached an empty car down grade to have it loaded with rock, and told Coolican the car was coming, but he failed to get out of the way in time, and was caught between the car and truck. Had Coolican not tried to get to the brake of the car and crossed the road, the accident would not have happened.

Fatal Accidents by Explosion of Fire-Damp.

ACCIDENTS, Nos. 21, 22, and 23.—George Martin, a night fire-boss, aged sixty-eight years, and Joseph Cleasby, the day fire-boss, aged thirty-four years, and Peter Stone, a laborer, aged thirty-four years, were fatally burned by an explosion of gas in the Mill Creek colliery, Plains township, December 14, and died therefrom December 15, 1885. Peter Coffey, Samuel Morris, Nicholas Gray, and Joseph Parduski were slightly burned at the same time. In the morning, Joseph Cleasby examined the mine and found gas in several chambers in No. 12 lift, Top vein, and he reported and also notified the miners that worked in those chambers not to go into them, as he would go and remove the gas so that they could go to work. The mine-boss sent George Martin, his father, with Cleasby to help him. They removed the gas out of all the chambers but one, which was Peter Coffey's chamber, and while on the gangway at the bottom of Coffey's chamber, the explosion occurred. Coffey says the fire-boss told him his chamber was all right, to go to work, and that when he got to the face of the chamber the explosion occurred by his igniting the gas, with the above

result. The two fire-bosses, having their skulls fractured with the concussion, were unable to speak, to give a statement how the explosion occurred.

Fire-bosses should give the men under their charge to understand, each morning, when they find gas in their places to stop wherever it is safe until they come back, or if too dangerous, to send them home and not let them visit their brother-workmen, as there is a possibility of the fire-boss not seeing them, thereby causing an accident.

Classification of Fatal Accidents which Occurred from October 25 to December 31, 1885, Inclusive.

Causes of Accidents.	Number.	Per centum.
From falls of roof and coal.	2	25.00
From explosion of gas,	3	37.50
By cars in the mines,	1	12.50
By cars outside,	1	12.50
By falling down shaft,	1	12.50
Total,	8	100.00

Injuries not Proving Fatal.

Causes of Accidents.	Number.	Per centum.
By falls of roof and coal,	6	28.57
By explosi n of gas.	8	38.09
By cars underground,	3	14.29
Miscellaneous causes, inside,	4	19.05
Total,	21	100.00

Number of Employees and Tons of Coal Mined per Person Employed.

Name of Companies.	Number of persons employed.	Coal mined per employé—tons.
Pennsylvania Coal Company,	2,654	397.26
Lehigh Valley Coal Company,	2,272	361.58
Delaware, Lackawanna and Western Railroad Company,	678	266.19
Delaware and Hudson Canal Company,	1,114	375.12
Butler Coal Company,	947	349.16
Wyoming Valley Coal Company,	579	360.53
Miscellaneous coal companies,	2,412	368.72
All coal companies,	10,656	364.29

Average Number of Days Worked and Tons of Coal Mined Per Day for Each Person Employed.

NAME OF COMPANIES.	Days worked.	Tons mined per employé.
Pennsylvania Coal Company,	192.90	2.05
Lehigh Valley Coal Company,	154.14	2.34
Delaware, Lackawanna and Western Railroad Company,	186.00	1.43
Delaware and Hudson Canal Company,	198.00	1.89
Butler Coal Company,	151.71	2.30
Wyoming Valley Coal Company,	250.55	1.43
Miscellaneous coal companies,	180.68	2.04
All coal companies,	187.71	1.94

COLLIERY IMPROVEMENTS DURING 1885.

The Pennsylvania Coal Company.

At the Barnum Shaft, No. 2 was sunk from the Ross to the Red Ash vein, a distance of two hundred and thirteen feet. This improvement opens a large area of good coal for this company.

Pennsylvania Coal Company.

Shaft No. 14, located in Jenkins township, having reached the Fourteen-Foot vein, at a depth of three hundred and sixty-five feet. This shaft cuts the Seven Foot vein at a depth of two hundred and fifty-six feet. Its use will be for hoisting coal. The size is $12' \times 52'$. They are sinking the second opening, and have reached the Seven Foot vein, at a distance of two hundred and forty-six feet. The breaker is completed all but putting in the machinery.

Lehigh Valley Coal Company.

At the Wyoming Colliery a tunnel was driven from the lower to the upper split of the Baltimore vein, to be used for ventilation.

Delaware, Lackawanna and Western Railroad Company

Are sinking the second opening to the Pettebone shaft. There is no work doing in the mine shaft, as it has reached the vein they intended to work some time ago.

Delaware and Hudson Canal Company.

At the Pine Ridge Colliery, two shafts were sunk, one in the Baltimore vein, to a depth of one thousand feet. The size is $7\frac{1}{2}' \times 12'$, with a gradient of ten degrees. The other is sunk in the Hillman vein, to a depth of

six hundred feet. The sectional area is 8×12 feet; gradient, fourteen degrees. These slopes are intended to maintain the present production of the colliery.

Butler Coal Company.

At the Boston Colliery, two tunnels were driven from the Red Ash vein to Red Ash, a distance of four hundred feet; one tunnel to transport coal, the other for ventilation. They have, likewise, sunk two slopes on same vein, one six hundred and fifty feet, the other one hundred and fifty feet, which open up some good coal for this company, as some time ago this colliery was considered to be worked out.

Butler Coal Company.

At the Butler Colliery a new slope was sunk on the Pittston vein, a depth of one hundred and fifty feet, for the purpose of robbing or taking the pillars out.

Haddock & Steel.

A new air-shaft was sunk by this company from the surface to copper vein, a distance of one hundred and sixty feet. Size of shaft, 16×16 feet. A new twenty-foot Guibal fan was erected thereon; face of fan, eight and one half feet. Two side inlets, diameter eight and one half feet, working speed sixty revolutions per minute, giving ninety thousand cubic feet of air exhausted per minute, with one and a half inches of water gauge. The gearing is direct. This fan was started July 26, 1885, taking the place of the old fan.

W. G. Payne & Co.

A new twenty-five-foot fan, of the Guibal pattern, was placed in position at the East Boston Colliery, in place of the fifteen-foot fan which was done away with. The new fan is placed over the same shaft as the old one was, giving a result of one hundred and twenty-three thousand three hundred and eighty-six cubic feet of air exhausted per minute, with a water-gauge of eight tenths of an inch, with a working speed of forty revolutions per minute. It was started December 2, 1885. It is direct in gearing. This colliery has the means now to give their men all the fresh air they will want.

Waddel & Walters.

A new shaft was sunk in the Bennett shaft, from the upper to the lower split of the Baltimore vein, to a depth of two hundred feet. Size of slope, 6×18. Gradient of fifteen degrees. Likewise, a new gravity plane was driven in the lower split, three hundred feet, with a sectional area of 6×18, and a gradient of twelve degrees, which will open up some good coal, and enlarge the company's shipment from this colliery.

Florence Coal Company.

A new breaker has been built on the site of the old breaker, which was burned down August 1, 1884. It is supplied with first-class machinery for cleaning and preparing coal. They started the breaker May 1, 1885. It has a capacity of eight hundred tons per day.

TABLE I.—*Showing location of collieries in the Second Anthracite Mine District.*

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Post-Office Address.
Bernice,	State Line and Sullivan Railroad Company,	Sullivan county,	J. O. Blight,	Towanda, Bradford county.
Benuett,	Thomas Waddel & Walters,	Plains township,	Thomas Waddel,	Pittston, Luzerne county.
Black Diamond,	Haddock & Steel,	Kingston township,	James B. Davis,	Plymouth, Luzerne county.
Butler,	Dimming & Cowan,	Pittston township,	F. C. Dimming, Jr.,	Pittston, Luzerne county.
Boston,	do.	Jenkins township,	do.	do. do.
Barnum, two shafts,	Pennsylvania Coal Company,	Marcy township,	John B. Smith,	Hawley, Wayne county.
Breaker, No. 6, three shafts,	do. do.	Jenkins township,	do.	do. do.
Breaker, No. 8, two shafts,	do. do.	Hughestown borough,	do.	do. do.
Breaker, No. 10, three shafts,	do. do.	do. do.	do.	do. do.
Clear Spring,	Clear Spring Coal Company,	West Pittston,	John L. Cake,	Pittston, Luzerne county.
Consolidated,	Hillside Coal Company,	Pleasant Valley,	W. A. May,	Scranton, Lackawanna county.
Columbia,	Grove Brothers,	Marcy township,	Abandoned.	
Elmwood,	Florence Coal Company,	Pittston township,	Austin Moore,	Avoca, Luzerne county.
Enterprise,	A. Langdon,	Plains township,	C. D. Simpson,	Scranton, Lackawanna county.
East Boston,	W. G. Payne,	Kingston township,	E. F. Payne,	Kingston, Luzerne county.
Exeter,	Lehigh Valley Coal Company,	West Pittston,	Fred. Mercur,	Wilkes-Barre, Luzerne county.
Fuller,	Delaware, Laokawanna and Western Railroad Co.	Wyoming,	W. R. Storrs,	Scranton, Lackawanna county.
Forty Fort,	Wyoming Valley Coal Company,	Kingston township,	J. H. Swoyer,	Wilkes-Barre, Luzerne county.
Hillman,	H. Baker Hillman,	Miner's Mills borough,	H. B. Hillman,	do. do.
Henry,	Lehigh Valley Coal Company,	Plains township,	Fred. Mercur,	do. do.
Harry E.,	Wyoming Valley Coal Company,	Kingston township,	J. H. Swoyer,	do. do.
Halstead,	Delaware, Lackawanna and Western Railroad Co.	Marcy township,	W. R. Storrs,	Scranton, Lackawanna county.
Heidelberg,	Lehigh Valley Coal Company,	Pittston township,	Fred. Mercur,	Wilkes-Barre, Luzerne county.
Laurel Run,	Delaware and Hudson Canal Company,	Parsons borough,	A. H. Vandling,	Scranton, Lackawanna county.
Law's Shaft,	Pennsylvania Coal Company,	Pittston township,	John B. Smith,	Hawley, Wayne couuty.
Midvale,	Lehigh Valley Coal Company,	Plains township,	Fred. Mercur,	Wilkes-Barre, Luzerne county.
Miueral Spring,	do. do.	Parsons borough,	do.	do. do.
Mill Creek,	Delaware and Hudson Canal Company,	Plains township,	A. H. Vandling,	Scranton, Lackawanna county.
Maltby,	Lehigh Valley Coal Company,	Wyoming,	Fred. Mercur,	Wilkes-Barre, Luzerne county.
Mosier,	Butler Coal Company,	Hughestown borough,	F. C. Dimming, Jr.,	Pittston, Luzerne couuty.
Ontario,	Lehigh Valley Coal Company,	Pleasant Valley,	Fred. Mercur,	Wilkes-Barre, Luzerne county.
Prospect,	do. do.	Plains township,	do.	do. do.
Pine Ridge,	Delaware and Hudson Canal Company,	Miner's Mills borough,	A. H. Vandling,	Scranton, Lackawanna county.
Raubville.	Thomas Waddel,	Luzerne borough,	James Waddel,	Wilkes-Barre, Luzerne county.
Shaft, No. 4,	Pennsylvania Coal Company,	Pittston borough,	John B. Smith,	Hawley, Wayne county.
Shaft, No. 7,	do. do.	Jenkins township,	do.	do. do.
Shaft, No. 14,	do. do.	do.	do.	do. do.
Slope, No. 2,	do. do.	do.	do.	do. do.
Slope, No. 4, and Tunnel,	do. do.	do.	do.	do. do.
Schooley,	Butler Coal Company,	Wyoming,	F. C. Dimming, Jr.,	Pittston, Luzerne county.
Tunnel, No. 1,	Pennsylvania Coal Company,	Pittston township,	John B. Smith,	Hawley, Wayne county,
Twin,	Butler Coal Company,	Pittston borough,	F. C. Dimming, Jr.,	Pittston, Luzerne county.
Wyoming,	Lehigh Valley Coal Company,	Plains township,	Fred. Mercur,	Wilkes-Barre, Luzerne county.

TABLE II.—*Showing Character of Coal, Production, Number of Employés, Days Employed, Casualties, &c., in the Second Anthracite Mine District, for the year ending December 31, 1885.*

COLLIERIES.	Operators.	Character of Coal, Anthracite or Semi-Anthracite, Bituminous or Semi-Bituminous.	Drift, slope, or shaft.	Number of inside workmen.	Number of outside workmen.	Total employees.	Number of days worked inside.	Number of days worked outside.	Number of horses and mules.	PRODUCTION.		CASUALTIES.				
										Number of tons produced.	Number of tons shipped.	Killed inside.	Killed outside.	Injured inside.	Injured outside.	Total killed and injured.
Bernice,	State Line and Sul. R. R. Co.,	Semi-anthracite,	2 Drifts,	145	91	236	198.75	198.75	36	119,612.00	73,117.02	1	..	..	..	1
Bennett,	Waddel & Walters,	Anthracite,	Shaft,	171	90	261	254.75	254.75	18	97,538.00	94,350.15	..	..	..	..	..
Black Diamond,	Haddock & Steel,	do.	do.	211	95	306	151.30	151.30	30	104,030.00	92,942.00	1	..	2	..	3
Butler,	Butler Coal Company,	do.	S. & T.,	88	53	141	153.00	153.00	17	36,496.05	31,411.12	..	..	..	..	..
Boston,	do. do.	do.	S. & 2T.,	121	70	191	130.00	130.00	24	30,131.16	29,634.07	..	..	..	..	..
Clear Spring,	Clear Spring Coal Company,	do.	Shaft,	250	84	334	166.00	166.00	28	136,256.00	129,934.00	..	..	1	..	1
Consolidated,	Hillside Coal Company,	do.	Sh. & S.,	237	88	325	210.25	210.25	34	111,271.00	110,161.00	..	..	1	..	1
Enterprise,	A. Langdon,	do.	Shaft,	157	56	213	100.40	100.40	39	40,679.00	37,049.00	..	..	1	..	1
East Boston,	W. G. Payne & Co.,	do.	do.	194	73	267	160.40	160.40	31	114,191.00	112,871.00	..	..	..	..	..
Elmwood,	Florence Coal Company,	do.	do.	123	79	202	169.00	169.00	21	52,996.00	52,635.00	..	..	..	..	..
Exeter,	Lehigh Valley Coal Company,	do.	do.	219	117	336	6.90	6.90	54	15,822.00	14,386.00	..	..	..	..	..
Forty Fort,	Wyoming Valley Coal Company,	do.	Sh. & T.,	255	23	278	248.40	248.40	24	118,350.00	109,600.00	1	..	..	..	1
Fuller,	Del., Lacka. and West R. R. Co.,	do.	Shaft,	114	69	183	203.60	203.60	31	33,973.07	30,518.07	..	..	..	..	..
Henry,	Lehigh Valley Coal Company,	do.	do.	285	101	386	193.90	193.90	53	168,993.00	158,476.00	..	..	..	..	..
Harry E.,	Wyoming Valley Coal Company,	do.	Drift,	147	154	301	252.70	252.70	22	90,400.00	78,000.00	..	..	..	..	..
Heidelberg,	Lehigh Valley Coal Company,	do.	Sh. & 2S.,	145	108	253	200.00	200.00	25	79,038.00	78,605.02	..	..	1	..	1
Halstead,	Del., Lacka. and West. R. R. Co.,	do.	Shaft,	304	139	443	168.40	168.40	50	146,508.00	141,199.18	..	..	..	..	..
Hillman,	H. B. Hillman,	do.	Slope,	48	30	78	197.00	197.00	13	44,800.00	43,000.00	..	..	..	..	..
Laurel Run,	Delaware and Hudson Canal Co.,	do.	do.	218	139	357	186.75	186.75	42	111,386.00	111,386.00	..	..	..	..	..
Laws,	Pennsylvania Coal Company,	do.	Shaft,	134	98	232	235.00	235.00	25	97,493.00	97,499.00	..	..	1	..	1
Mineral Spring,	Lehigh Valley Coal Company,	do.	Slope,	133	105	238	149.75	149.75	20	62,762.19	56,342.19	..	..	..	..	..
Mill Creek,	Delaware and Hudson Canal Co.,	do.	do.	237	137	374	207.75	207.75	38	169,212.00	169,212.00	3	..	6	..	9
Mosier,	Butler Coal Company,	do.	Sh. & S.,	151	88	239	202.00	202.00	24	78,513.06	77,230.00	..	..	..	..	..
*Midvale,	Lehigh Valley Coal Company,	do.	Slope,	..	..	..	..	..	..	..	..	..	..	..	..	..
*Maltby,	do. do. do.	do.	Shaft,	..	..	..	..	..	..	..	..	..	..	..	..	..
Pine Ridge,	Delaware and Hudson Canal Co.,	do.	do.	242	141	383	199.50	199.50	48	137,289.00	134,707.00	..	..	..	..	..
Prospect,	Lehigh Valley Coal Company,	do.	2 Shafts,	423	197	620	205.50	205.50	70	303,388.16	303,222.05	..	..	4	..	4
†Pettibone,	Del., Lacka. and West. R. R. Co.,	do.	Shaft,	27	25	52	..	..	..	..	..	..	..	..	..	..
Raubville,	Thomas Waddel,	do.	Sh. & D.,	126	64	190	199.00	199.00	12	68,000.00	60,000.00	..	..	1	..	1
Schooley,	Butler Coal Company,	do.	Shaft,	148	85	233	186.00	186.00	31	154,871.00	149,581.00	..	..	1	..	1
Shafts, Nos. 1 and 2,	Pennsylvania Coal Company,	do.	2 Shafts,	365	126	491	215.50	215.50	51	215,079.00	215,079.00	..	..	..	..	..
Shafts, Nos. 1 and 8,	do. do.	do.	do.	208	86	294	176.75	176.75	31	97,005.00	97,005.00	..	..	..	..	..
Shaft, No. 7,	do. do.	do.	Shaft,	143	29	172	193.00	193.00	22	79,021.00	79,021.00	..	..	1	..	1

Shafts, Nos. 5, 6, and 11,	do.	do.	. . .	do.	. . .	3 Shafts,	288	140	428	189.50	189.50	59	150,386.00	150,386.00	1	. .	. .	. .	. .	1
Shafts, Nos. 9 and 10,	do.	do.	. . .	do.	. . .	2 Shafts,	365	133	498	210.00	210.00	60	213,390.00	213,390.00	. .	. .	. .	. .	. .	. .
†Shaft, No. 14,	do.	do.	. . .	do.	. . .	Shaft,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. .	. .	. .	. .	. .	. .
Shaft, No. 4,	do.	do.	. . .	do.	. . .	do.	137	21	158	174.00	174.00	16	59,436.00	59,436.00	. .	1	. .	. .	. .	1
Slope, No. 2,	do.	do.	. . .	do.	. . .	Slope,	97	18	115	190.50	190.50	17	44,291.00	44,291.00	. .	. .	. .	. .	. .	. .
Slope, No. 4,	do.	do.	. . .	do.	. . .	do.	129	27	156	174.00	174.00	28	57,902.00	57,902.00	1	. .	. .	. .	. .	1
Tunnel, No. 1,	do.	do.	. . .	do.	. . .	S. & T.,	92	18	110	170.75	170.75	16	39,219.00	39,219.00	. .	. .	. .	. .	. .	. .
Twin,	Butler Coal Company,	. . .	. . .	do.	. . .	Shaft,	89	54	143	87.50	87.50	22	20,646.00	19,525.18	. .	. .	. .	. .	. .	. .
Wyoming,	Lehigh Valley Coal Company,	. . .	. . .	do.	. . .	do.	311	128	439	168.80	168.80	52	181,519.00	174,598.00	. .	. .	1	. .	. .	1
Grand totals,	. . .	. . .	. . .	. . .	. . .	. . .	7,277	3,379	10,656	176	176	1,241	3,881,902.00	3,726,924.00	8	1	21	. .	. .	30

*Did not work in 1885.

†Not shipping coal yet.

TABLE No. III.—*Showing state of Ventilation in all the Collieries operated in the Second District of Luzerne and Sullivan counties, for the year ending December 31, 1885.*

NAME OF COLLIERIES.	Power by which the ventilation is produced.	Revolutions per minute per fan.	Total cubic feet of air per minute at inlet.	CUBIC FEET OF AIR PER MINUTE PASSING NEAR THE FACE IN EACH SPLIT.							Total cubic feet of air per minute passing near the face.
				No. 1.	No. 2.	No. 3.	No. 4	No. 5.	No 6.	No. 7.	
1. Bernice Drifts,	Furnace,		26,500	6,840	3,660	10,425					20,925
2. Bennett Shaft,	Fan,	65	29,340	7,240	10,105						17,345
3. Black Diamond Shaft,	Fan,	50	50,600	11,000	25,000						36,000
4. Butler Shaft,	Natural,		19,200	16,800							16,300
5. Boston Slope,	Furnace,		35,400	6,000	12,600						18,600
6. Barnum Shaft,	Fan,	50	71,740	21,100	11,475	14,800	13,500				60,875
7. Clear Spring Shaft,	Fan,	65	59,300	10,000	11,000	11,000	12,000				44,000
8. Consolidated Shaft,	Fan,	110	31,990	13,990	13,700						27,690
9. Consolidated Slope,	Furnace,		11,600	5,800							5,800
10. Enterprise Shaft,	Fan,	49	67,700	5,600	5,500						11,100
11. East Boston Shaft,	Fan,	40	96,300	24,750	14,350	25,100	10,200				74,400
12. Elmwood Shaft,	Fan,	50	46,250	19,100	16,800						35,900
13. Exeter Shaft.*	Fan.										
14. Forty Fort Shaft,	Fan,	74	30,000	7,500	8,200						15,700
15. Fuller Shaft,	Fan,	50	53,850	26,600	16,750						43,350
16. Henry Shaft,	Fan,	75	133,900	18,610	17,530	13,380	8,000	7,390	6,500	14,520	86,430
17. Harry E., Ross Tunnel,	Natural,		12,000	9,000							9,000
18. Harry E., Baby Slope,	Fan,	50	31,700	29,600							29,600
19. Heidelberg Shaft,	Fan,	50	35,880	27,640							27,640
20. Heidelberg Slope,	Fan,	225	16,330	12,260							12,260
21. Halstead Shaft,	Fan,	135	93,762	25,950	8,625	20,218	10,932	12,645	7,120		85,490
22. Hillman's Slope,	Fan,	70	3,500	3,000							3,000
23. Laurel Run Slope,	Two fans,	83	147,551	15,983	16,235	29,335	11,215	9,020	10,655		92,463
24. Law's Shaft,	Fan,	70	59,640	12,800	9,600	10,960	10,800				44,160
25. Oakwood Shaft,	Fan,	45	143,438	27,215	10,487	9,389	9,817	11,653	5,838	26,145	100,549
26. Mineral Spring Slope,	Fan,	70	75,000	11,000	12,500	3,000					26,500
27. Mill Creek Slope,	Fan,	43	130,500	12,945	10,000	13,700	15,700	13,500	21,900	26,790	114,535
28. Mosier Shaft,	Natural,		15,600	15,300							15,300
29. Mosier Slope,	Fan,	65	43,650	22,050	21,600						43,650
30. Midvale Slope,	Fan,	41	48,953	3,541	3,596	5,518	9,657	9,876			42,188
31. Maltby Shaft,	Fan.										
32. Ontario Slope,	Natural,		16,390	14,165							14,165
33. Pine Ridge Shaft,	Fan,	83	59,595	22,735	21,320	10,040					54,095
34. Prospect Shaft,	Fan,	47	116,261	15,405	19,452	18,577	14,900	17,750	20,892	22,215	129,221
35. Pettibone Shaft.											
36. Raubville Shaft,	Fan,	60	30,215	10,200	8,350						18,550
37. Schooley Shaft,	Fan,	60	95,400	45,800	44,800						90,600

38. Shaft, No. 1, Barnum,	Fan,	50	71,740	21,100	11,475	14,800	13,500						60,875
39. Shaft, No. 2, Barnum,	Fan,	50	30,130	9,500	10,640	8,000							28,140
40. Shaft, No. 2, Barnum, 14-foot vein,	Fan,	50	52,330	20,380	7,800	13,000	10,000						51,680
41. Shaft, No. 1, Breaker 8,	Fan,	54	23,760	12,000	10,500								22,500
42. Shaft, No. 8, Breaker 8,	Fan,	54	84,200	15,200	14,500								29,500
43. Shaft, No. 7,	Fan,	84	40,851	10,540	19,850	2,150	4,030						36,570
44. Shaft, No. 6, Breaker 6,	Natural,		25,000	2,500	10,000	10,000							22,500
45. Shaft, No. 5, Breaker 6,	Fan,	65	35,040	13,000	5,300	5,160	13,800						37,260
46. Shaft, No. 11, Breaker 6,	Fan,	60	33,760	7,100	8,300	11,600							27,000
47. Shaft, No. 9, Breaker 10,	Fan,	54	59,800	14,100	15,100	16,000							45,200
48. Shaft, No. 10, Breaker 10,	Fan,	68	58,200	13,800	15,300	16,400	17,600	14,200	15,700				93,200
49. Shaft, No. 4,	Fan,	62	26,200	6,900	5,000	10,600							22,500
50. Slope, No. 2,	Steam,		30,725	18,000	16,345								34,345
51. Slope, No. 4,	Fan,		13,300	9,780	10,800								20,580
52. Tunnel, No. 1,	Steam,		26,900	9,600	9,200	8,650							27,450
53. Twin Shaft,	Fan,	56	39,200	13,500	10,800								24,300
54. Wyoming Shaft,	Fan,	48	154,710	37,100	34,750	12,100	26,700	28,300					138,950

*Only worked one week this year.

TABLE IV.—LIST OF ACCIDENTS *occurring in the mines of the Second Anthracite Coal District, for the year ending December 31, 1885.*

Date of accident.	Name of Persons Killed.	Age.	Married or single	No. of orphans.	Name of Colliery.	Location—County.	Nationality.	Occupation.	Nature and Cause of Accident in Brief.
Nov. 5	Patrick Golden,	17	..	..	Slope, No. 4,	Pittston, Luzerne county,	Irish, ..	Driver, ..	Fell undor cars while coming out with trip.
19	Patrick Coolican,	35	..	..	Shaft, No. 4,	do. do.	do. ..	Laborer, .	Squeezed between gravity cars at outside chutes.
28	Laurance Murry,	35	1	5	Forty Fort,	Wyoming, Luzerne county,	do. ..	Miner, ..	Fell down shaft, breaking his back; died Dec. 17.
Dec. 1	Michael Flaherty,	50	1	..	Shaft, No. 6,	Pittston, Luzerne county,	do. ..	do. ..	Instantly killed by fall of coal and rock from side of entrance.
4	Lawrence Crogan,	50	1	4	Black Diamond Shaft,	Luzerne boro., Luzerne co.	do. ..	do. ..	Instantly killed while going to stand a prop.
14	George Martin,	68	1	..	Mill Creek Slope,	Plains twp., Luzerne co.,	English, .	Fire-boss,	Fatally injured by explosion of fire-damp; died Dec. 15.
14	Joseph Cleasby,	34	..	..	do.	do. do.	do. .	do.	
14	Peter Stone,	34	1	3	do.	do. do.	Polish, ..	Laborer, .	
April 7	Robert Jeffery,	27	..	..	Jackson Drift,	Bernice, Sullivan county,	.....	Wator bai'r	Instantly killed by having his head caught between cars.
	Name of Persons Seriously Injured:								
Nov. 9	John Early,	46	..	..	Shaft, No. 7,	Pittston, Luzerne county,	Irish, ..	Miner, ..	Knee bruised by rock falling on it.
11	Hugh Corcoran,	17	..	..	Enterprise Shaft,	Plains, Luzerne county, .	do. ..	Driver, ..	Squeezed between mulo and prop.
11	David Bram,	21	..	..	Schooley Shaft,	Wyoming, Luzerne county,	do. ..	Car runner	Collar bone and rib broken; run over by cars.
14	James Galvin,	16	..	..	Wyoming Shaft,	Plains, Luzerne county, .	do. ..	Door boy,	Struck under chin with rope on gravity plane.
19	Job Tilly,	15	..	..	Mill Creek Slope,	do. do. .	English, .	Driver, ..	Kicked in face by a mule.
27	James Calderwood,	38	..	..	Law's Shaft,	Pittston, Luzerne county,	Scotch, ..	Miner, ..	Arm broken by premature blast.
30	Joseph Howarth,	39	..	..	Prospect Shaft,	Plains, Luzerno county, .	English, .	Engineer,	Fingor crushed by head of cyliuder.
Dec. 10	John Moliston,	35	..	..	Mill Creek Slope,	do. do. .	Polish, ..	Laborer, .	Leg amputated; crushed by fall of coal.
10	John Smith,	45	..	..	Clear Spring Shaft,	West Pittston, Luzerne co.	English, .	Miner, ..	Burned by explosion of gas.
14	Peter Coffey,	42	..	..	Mill Creek Slope,	Plains, Luzerne county, .	Irish, ..	do. ..	
21	John Kivolskie,	16	..	..	Prospect Shaft,	do. do. .	Hungarian,	Driver, ..	Arm dislocated at shoulder; fell under cars.
	Persons Slightly Injured:								
Nov. 7	Thomas Lamb,	35	..	..	Black Diamond Shaft,	Kingston, Luzerne county,	Irish, ..	Miner, ..	Slightly burned by explosion of fire-damp.
7	James Burns,	30	..	..	do. do.	do. do.	do. ..	Laborer, .	
9	Thomas Parry,	25	..	..	Prospect Shaft,	Plains, Luzerne county, .	Welsh, ..	Miner, ..	
24	Solomon Jermyn,	45	..	..	Consolidated Slope,	Ploasant Valley, Luzerne co	do. ..	do. ..	Back bruised by fall of coal.
Dec. 3	Edward E. Davis,	44	..	..	Ontario Slope,	do. do.	Irish, ..	do. ..	Leg bruised by fall of coal.
11	Lawrence Craston,	30	..	..	Raubville Shaft,	Luzerne boro., Luzerne co.	English, .	do. ..	Back bruised by fall of coal.
14	Samuel Morris,	24	..	..	Mill Creek Slope,	Plains, Luzerne county, .	do. .	Laborer, .	Slightly burned by explosion of gas.
14	Nicholas Gray,	16	..	..	do.	do. do. .	do. .	Drivor, ..	Slightly injured by concussion of explosion of gas.
14	Joseph Parduski,	15	..	..	do.	do. do. .	Polish, ..	Door boy,	
23	Joseph Schimsick,	20	..	..	Prospect Shaft,	do. do. .	Hungarian,	Laborer, .	Slightly bruised on shoulder while passing between cars.

TABLE V.—*Showing the grand total of employés, horses, mules, engines, pumps, boilers, and powder employed, tons of coal mined and shipped, fatal and non-fatal accidents, &c, in the Second Anthracite Mine District, for the year ending December 31, 1885.*

NAME OF COUNTIES AND PARTS OF COUNTIES IN THE DISTRICT.	Total number of men employed.	Total number of boys employed.	Total number of horses and mules employed.	Total number of engines and pumps employed.	Total number of boilers employed.	Total number of kegs of powder consumed.	Total number of tons of coal produced.	Total number of tons of coal shipped.	Total number of fatal accidents.	Total number of non-fatal accidents.	Total number of times air measurements were taken.
Pennsylvania Coal Company, Luzerne county,	1,966	688	325	92	115	34,337	1,053,228.00	1,053,228.00	3	2	.....
Lehigh Valley Coal Company, Luzerne county,	1,528	744	274	93	130	24,498	811,520.00	785,630.15	.....	6	.....
Delaware, Lackawanna and Western Railroad Company, Luzerne county,	508	170	88	32	35	6,435	180,482.00	171,717.00	.....	.....	.....
Delaware and Hudson Canal Company, Luzerne county,	660	454	128	47	56	13,486	417,887.00	415,305.00	3	6	.....
Butler Coal Company, Luzerne county,	605	342	118	28	47	11,824	320,659.00	307,384.00	.....	1	.....
Wyoming Valley Coal Company,	454	125	46	21	26	8,350	208,750.00	187,600.00	1	.....	.....
State Line and Sullivan Railroad Company, Sullivan county,	153	83	36	1	1	974	119,613.00	73,117.00	1	.....	.....
Miscellaneous coal companies, Luzerne county,	1,505	671	226	85	109	27,449	769,763.09	732,943.00	1	6	.....
Total, all companies,	7,379	3,277	1,241	399	519	127,353	3,881,902.09	3,726,923.05	9	21	.....

THIRD DISTRICT.

OFFICE OF INSPECTOR OF MINES,
THIRD DISTRICT ANTHRACITE COAL FIELDS,
WILKES-BARRE, PA., *March 17, 1886.*

Honorable J. SIMPSON AFRICA,
Secretary of Internal Affairs of Pennsylvania:

SIR: As provided in section seven, article two, of the act of June 30, 1885, providing for the health and safety of persons employed in and about the anthracite coal mines, I have the honor of presenting my report for the year 1885.

The creation of an additional inspection district by this act reduced the number of collieries in this district from sixty-three to forty-two; but, having no inspector appointed for the Second or new district until the end of October, a list of the fatal and non-fatal accidents for the twenty-one collieries formerly in this district is found in my report up to October 31, when Mr. McDonald was appointed inspector for the Second district.

The amount of coal mined in 1885 was 6,177,644 tons, an increase of 442,223 tons over the amount mined in the same portion of the district in 1884.

The number of fatal accidents was 89, leaving 46 widows and 145 orphans.

The number of non-fatal accidents was 285, but only 178 of which were classed as being serious.

The report contains lists of the fatal and non-fatal accidents, tables of useful statistics, and other information thought to be useful.

Three very serious disasters happened in this district during 1885—the first at the West End colliery, August 11, where ten men lost their lives by suffocation; the second at the No. 2 shaft, Plymouth, where sixteen men were seriously burned by an explosion of gas on October 21, six of whom died; and the third was the disaster in the No. 1 slope, Nanticoke, December 18, where twenty-six persons were entombed by an inrush of quicksand. A full account of each will be found in this report, which is respectfully submitted.

G. M. WILLIAMS,
Inspector of Mines, Third District.

Total Amount of Coal Mined during the year 1885.

Lehigh and Wilkes-Barre Coal Company,	1,710,539.15 tons.
Delaware and Hudson Canal Company,	867,596.02 tons.
Susquehanna Coal Company,	1,466,736.17 tons.
Kingston Coal Company,	659,793.19 tons.
Miscellaneous coal companies,	1,472,978.01 tons.
Total of all coal companies,	6,177,644.13 tons.

Number of Fatal Accidents and Amount of Coal Produced per Life Lost.

Names of the Companies.	Number of lives lost.	Coal mined per life lost—tons.
Lehigh and Wilkes-Barre Coal Company,	11	155,500
Delaware and Hudson Canal Company,	9	96,399
Susquehanna Coal Company,	45	32,594
Kingston Coal Company,	1	659,793
Miscellaneous coal companies,	20	73,648
Totals,	86	71,833

There were three persons killed in shafts not producing coal, which are not included in the above table.

Classification of Fatal and Serious Non-Fatal Accidents.

Causes of Accidents.	Killed.	Seriously injured.
By explosions of carbureted hydrogen gas,	11	52
By falls of roof and coal,	17	38
By falling down shafts,	4	1
By cars undergound,	6	26
By explosions of powder and blasts,	6	20
Miscellaneous causes, inside,	39	20
Miscellaneous causes, outside,	6	21
Totals,	89	178

Number of widows, forty-six; orphans, one hundred and forty-five.

Number of Employees, Average Number of Days Worked and Tons of Coal Mined per Day.

NAMES OF THE COMPANIES.	Number of persons employed.	Average number of days in operation.	Tons of coal mined per day.
Lehigh and Wilkes-Barre Coal Company, . . .	6,599	169.30	10,103
Delaware and Hudson Canal Company, . .	2,636	156.62	5,539
Susquehanna Coal Company, ...	3,920	259.05	5,661
Kingston Coal Company, ...	1,553	202.45	3,259
Miscellaneous coal companies, ...	4,365	187.08	7,873
Totals, ...	19,073	194.90	31,696

Condition of the Mines.

The year 1885 was a remarkable one for its number of serious and fatal disasters, but, notwithstanding the large increase of such casualties, the condition of the mines is generally better and safer than it was in former years. With increase of technical knowledge of the theory and practice of mining and a wide range of experience in practice, a gradual improvement takes place continually, and this improved condition in the management of mines will be permanent, for there is no probability of retrograding to old methods. The deplorable calamity which occurred at the No. 1 slope, Nanticoke, arose from the unknown condition of the strata overlying the vein, in which great danger lurked unsuspected by any one. The system of mining was good and safe, and the accident was not the result of any wrong in the mine. The ventilation was good, and so it is in nearly all the mines of this district. There are one or two collieries, owing to peculiar circumstances, in which there is not quite enough air, and in others too many persons are employed in each split; but the attention of the officers has been called to that by the inspector and they promise to remedy the matter as soon as it is practicable to do so.

The new law has had good effect already in causing the main gangways to be kept clear of *débris*. The loose material left to lie along the side of gangways in some of the mines was dangerous, and caused the drivers to fall under the cars frequently, and it is very gratifying to see that the requirement of the law in this respect is very generally complied with.

A hearty coöperation with all the provisions of the new law will certainly produce good effect, and will materially increase the safety of the work of mining coal. In many mines it has been a very difficult work to get the miners to observe the law regarding the handling of powder, and

to keep the boxes containing powder locked; but, by continued practice, they will gradually get into the habit of doing so, and then there will be no further difficulty. It is much harder to maintain discipline and to keep the mines in good condition when they work only about half time than when they are working nearly full time. During a long interval of idleness, everything gets out of order, and, upon starting to work again, much more care is needed on the part of all to insure safety. With steady work I do not think there would be much reason to complain of the condition of the mines of this district.

New Collieries Started to Ship Coal in 1885.

The Newport colliery, or No. 6 of the Susquehanna Coal Company, is the only new one started during 1885. It is located about four miles west of Nanticoke, and with it the village of Morgantown sprung into existence. There are three openings made to produce coal—a shaft, a slope, and a tunnel. The size of the shaft is 32×15 feet, and its depth is 749 feet, having passed through several coal seams. The slope is sunk on one of the seams, on a grade of 45 degrees, having a sectional area of 11×18 feet, and in to a depth of 510 feet. The tunnel was driven horizontally from the surface into the mountain side to a distance of 1,265 feet, and has cut several coal seams. Its area is 8×14 feet. These openings are ventilated by three fans, one at each place. The tunnel and slope fans are each 20 feet diameter, and the shaft fan (which is only a temporary one) is 16 feet diameter. The coal from the three mines is prepared for the market by passing it through one large breaker. This was started August 17, 1885, but there was not much coal shipped till about the middle of September, and from that to the end of the year they shipped a total of 40,943 tons. This will eventually be one of the largest collieries in this district. There are four pairs of hoisting engines—two pairs and one single engine—to run the fans; one breaker engine and two pumps, and there are sixty boilers to produce steam. Everything is constructed in the best order, which speaks well of the persons who have it in charge.

Colliery Improvements during 1885.

The spirit of improvement was not so active in 1885 as it was in the years preceding it. The depression in the coal trade caused several collieries to be thrown idle, and those kept in operation, excepting those of the Susquehanna Coal Company, worked only a little over half time throughout the whole year. The No. 10 colliery of the Lehigh and Wilkes-Barre Coal Company did not work any, and the Baltimore tunnel and No. 2 collieries of the Delaware and Hudson Canal Company were idle, the former for the first nine months, and the latter for the first ten months of the year. Thus it is shown that more than enough collieries are already opened to produce the coal required by the market; yet, in order to maintain the producing capacity, some improvements were made, and also improvements for the ventilation were effected.

Lehigh and Wilkes-Barre Coal Company.

At the Empire colliery of this company a new fan was erected on the No. 2 shaft, which is 24 feet diameter, and produces a ventilation of 145,000 cubic feet of air per minute, running 70 revolutions per minute. A tunnel was also driven, for the purpose of ventilation and haulage, from the bottom to the top split of the Baltimore seam. It is 100 feet long and has a sectional area of 84 square feet. The South Wilkes-Barre shaft is continually sinking, and is now at a depth of 500 feet. The arrangement of the head of this shaft is very good; is heated by steam so that no ice forms in winter, and is thus kept in much safer condition than if ice was formed.

Delaware and Hudson Canal Company.

One of the new shafts at the Baltimore slope is sunk from the surface to the Red Ash seam, where it is found at a depth of 400 feet. The coal is fair and about 10 feet thick. They are now driving toward the other shaft, which will soon be sunk to the same vein, and by which a second opening will be effected.

Susquehanna Coal Company.

A number of improvements, such as tunnels and planes, were made in the mines of this company. In No. 4 slope two planes were made; one is 500 feet long, and the other 800 feet. These will facilitate the haulage of coal, and also enable them to mine coal which could not be reached otherwise. The slope was also extended a distance of 1,060 feet.

In the No. 1 slope a tunnel was driven from the Red Ash to the Ross and Twin veins. It is 9×14 feet area, and has a length of 1,150 feet.

Kingston Coal Company.

At the No. 4 shaft, this company erected a new breaker, which is nearly completed. It is a very large structure, built with a view of preparing the coal of the Ross and Red Ash seams. It will be heated throughout by steam, a new feature in coal-breakers, and for this purpose seven thousand feet of wrought-iron pipe were used in making the heating apparatus. It will be ready to ship coal early in 1886.

A new fan was erected on the No. 4 shaft. It is 24 feet diameter and running 60 revolutions per minute, gives a water gauge pressure of 1.10 inches and 14,000 cubic feet of air. The engine is horizontal, direct-acting, and the cylinder is 18-inch diameter.

Hillman Vein Coal Company.

At the Hillman shaft of this company a new upcast was made having an area of 150 square feet, and a new 24-foot fan was erected upon it. This fan, running 75 revolutions per minute, produces a pressure equal to 1.75 inches water-gauge and a ventilation of 180,000 cubic feet per minute of air. The engine is 15×24 inches and is direct acting. They are driving

a tunnel from the Hillman toward the Kidney vein, which at the close of the year was driven a distance of 250 feet. Its size is 12×7.

The Hanover Coal Company.

At the Maffit colliery of this company a tunnel was driven from the Ross to the bottom split of the Baltimore seam. Its sectional area is 7×12 feet and its length 200 feet. A second opening was effected, and the new seam is now being mined. A tunnel is in progress also from the Ross to the Red Ash seam, which will open a long lift of that vein.

The Parrish Coal Company.

A twenty-foot fan was erected at this colliery, which improved the ventilation to a great extent. Running 32 revolutions, it produces a ventilation of 75,000 cubic feet of air per minute. They are sinking a slope at this mine also to work the Baltimore seam.

Fire in the Dorrance Colliery.

This colliery belongs to the Lehigh Valley Coal Company and is located in the northern end of Wilkes-Barre. Late on Saturday evening, June 13, 1885, while the night shift were at work sinking the underground slope, the gas-blowers ignited from a miner's lamp. It very soon spread, and set the brattice and timber on fire, to such an extent that in spite of the most strenuous efforts they failed to extinguish it by the ordinary means and it was concluded to flood the mine with water. Water was pumped in from the river. While it was filling, a considerable quantity of smoke was ascending both shafts. By July 2, the mine had filled with water to a point sixty feet vertically higher than where the fire existed, and, believing it was extinguished, they began to hoist the water out. By July 12, the water was lowered to within two feet of the bottom of the gangway, when, to every one's surprise, four explosions took place, showing that fire still existed. The water was poured in again until the air-passages on the east side, where the fire existed, were closed. Then an examination revealed the fact that fire existed in the air-way at a point where it was much higher than the surrounding entrances, and they at once went to work to lay pipe from this high point out so that the air and gases could escape while the water was filling. This was a very dangerous work, because it had to be done in very noxious gases, consequently it was slow and tedious. By August 1, this was completed and water was poured in again. The air escaped all right for a day or two, but the heat caused steam to rise, saturating the air, and this again condensing in the pipe, soon filled the lowest point with water and made it useless. After leaving the water stand awhile, it was pumped out until it lowered so that the east air-way could be entered, and an examination proved that the fire was extinguished. After pumping the water all out, it was seen that the fire had spread over considerable ground and had done material damage, but this in time was re-

paired and the mine started to ship coal again in the fore part of November. At this fire it was demonstrated very clearly that a pipe is not of any use to permit air to escape from high points during a fire if water can stand in the pipe. It had a fair trial here and it failed.

A Powerful Explosion of Gas at the Stanton Colliery, Lehigh and Wikes-Barre Coal Company.

The Stanton Shaft is located in Wilkes Barre, about a mile south of the center of the city. The air-shaft is on the side of Hazle street, about two thousand feet north-west of the main shaft. The old workings are ventilated by a fan, located at the mouth of a slope sunk from the outcrop of the Baltimore seam, and the workings now in progress are ventilated by a thirty-five-foot fan, located at the air-shaft, which is divided into two compartments, one a downcast, and the other an upcast. The boilers generating steam to run this fan were near the top of the shaft, and the stack, made of boiler-plate iron, was standing just one hundred feet off, southeast of the outcast of the fan, and it was thirty feet high. On Sunday afternoon, May 10, 1885, this fan was stopped to pack the engine and do some repairs. Prior to this the mine was examined twice, to ascertain that no gas-blowers were burning, and it was pronounced safe. In one hour after stopping the fan, the explosive gases were full in the mine, up to the top of the shaft. It exploded in the safety-lamp on the surface at the mouth of the shaft, and a fire-boss was stationed there to watch and keep persons away, lest it might be carelessly fired. The fan was standing for three hours, and it was started again at six o'clock, P. M. After running about five minutes, throwing out about one hundred and fifty thousand cubic feet of fire-damp every minute, a flame was seen in the air, between the fan and the boiler-stack, which instantly descended the shaft through the fan, causing a slight shock, and raising the roof of the fan-drift about a foot out of place. The wind was blowing directly from the outcast toward the boiler-stack, and it is supposed the gas ignited from flame ascending the stack. The damage was only slight on the surface. William M. Thomas, the mine-foreman, and William G. Thomas and John Joseph, fire-bosses, descended the main shaft, and went in as far as the bottom of the air-shaft to see the result in the mine. This was very dangerous work, as another explosion might follow, but it was thought safer to go immediately after the explosion than after a delay. They returned in a short time, saying that considerable damage had been done inside, but they saw no indication of fire existing, and to make sure of being safe, they concluded to wait till the following morning before entering again. The next day they began to repair the damage, and an examination showed that the explosion had been very extensive, and had developed tremendous force, but the peculiar shape of the passages of the bottom of the air-shaft diverted its course, and thus saved the fan and the structure on top from destruction. All the doors from the shaft to the face of the workings were torn to frag-

SCHARAR'S SPEED AND TIME RECORDER.
PAT'D FEBR. 2–86.

ments. A large number of props were loosened along the gangway and in the breasts. Near the air-shaft, on the gangway, a number of loaded cars were piled into a mass of ruins. Near here, also, a bar of T iron, raised from the track, was broken in two pieces, one of which was bent to a figure resembling the number 8. The walls and débris filling the cross-headings between the gangways, and airways were swept out from all the cross-cuts that were inside of the air-shaft. The wood was charred with fire, and all the tool-boxes destroyed in all the breasts, from Nos. 30 to 49, inclusive, and the powder was exploded in most of these breasts. In several breasts full kegs of powder were exploded. Everywhere there were unmistakable signs that a terrific explosion had occurred, filling this portion of the mine with flame from roof to floor, a height of about eighteen feet. There was no sign discovered that coal had been on fire, and this confirms the supposition that the gas ignited from the boiler-stack. Fortunately, there was no one in the mine, and, therefore, there was no one injured. The company concluded to remove the boilers, and thus avert the possibility of another explosion occurring in the same manner.

Electric Signals in Mines.

Telephones were placed in the Old Franklin and Warrior Run slopes during the past year. These enable them to communicate freely from top to bottom and from bottom to top. The Lehigh and Wilkes-Barre Coal Company have introduced electric alarm bells from the fans into a number of their mines, so that the miners could be instantly called out in case the fan should break or fail to run.

Fans--Speed-Indicator.

Section seventeen, article ten, of the mine law requires that a recording instrument shall be provided on each fan in gaseous mines to register the number of revolutions, so that if the speed of the fan is retarded it may be detected. Mr. C. H. Scharar, engineer Delaware and Hudson collieries in this district, devised and patented an instrument for this purpose, and it is placed on the fan at the Conyngham colliery. It is working very satisfactorily, recording the speed of the fan for five days without changing the paper. It is attached to the engine, and a pencil draws a diagram on paper, indicating the speed at any time during a period of five days. A photograph of the instrument is presented in this report, to which the reader is referred.

Prosecution Under the New Mine Law.

The coroner's inquest, conducted by Esquire M. E. Walker, of Shickshinny, inquiring into the manner and mode of death of the ten men suffocated in the West End colliery, August 11, upon completing their investigation, returned the following verdict as their finding:

"We find, first, that the West End Coal Company is a corporation duly chartered, and is being operated under the mine laws of the Commonwealth.

"*Second*—That Peter Burckie, James Whalen, John Cygkoskie, Wilson Rymer, James Frey, Hiram O. Meade, Anthony Burckie, and Nicholas Burtels, on the 11th of August, 1885, were employed as miners and laborers by the said West End Coal Company.

"*Third*—That Christian Coonrad is the mine-boss for said company, and his duties as such are defined in section eight of the act of March 3, 1880, and article twelve, rule eight, of the act of June 30, 1885.

"*Fourth*—That on the morning of said 11th of August, Christian Coonrad, in utter disregard of his duty as mine-boss, knowing that the fan that supplies the mine with pure air had been disabled and not running for eight hours, permitted the said (names as above) and others, to the number of thirty-six, to enter the mine without any effort to ascertain whether or not the mine was free from danger. Indeed, as to his own testimony, 'without saying a single word to them.'

"*Fifth*—That William Zeinty, an employé of said West End Coal Company, was permitted by said Christian Coonrad to enter the slope leading to the mine after a score of persons, in attempting to go down said slope, had been stricken down with deadly gas, and when said Coonrad, as mine-boss, should have known that it was certain death for any one to enter.

"*Sixth*—That, by the gross negligence of said Christian Coonrad, the above-named persons came to their death by suffocation, owing to the accumulation of noxious and poisonous gases.

"In view of the foregoing, we do find that (names as above) came to their death aforesaid by asphyxiation; that we do further find and charge that the said (names repeated) came to their death aforesaid through the criminal negligence of Christian Coonrad, the mine-boss aforesaid."

The names of the persons acting as coroner's jury, and who signed the above verdict, were H. S. Clark, A. M. Coolbaugh, Webster Remaly, A. J. Crawford, George M. Beadle, and Hiram Dietrick.

After receiving a copy of the verdict and the names of the witnesses, the mine inspector presented the following petition to Judge Woodward on August 24, and he (the judge) directed a warrant to be issued, returnable on Thursday, September 10, 1885, at 10, A. M. On the 26th of August, Christian Coonrad appeared before the clerk of court, and gave bail for his appearance on the 10th of September in court.

The petition was as follows:

THE COMMONWEALTH OF PENNSYLVANIA *vs.* CHRISTIAN COONRAD.	In the Court of Quarter Sessions of the Peace.

To the Honorable, the Judges of the Court of Quarter Sessions of Luzerne County:

Your petitioner respectfully represents as follows, to wit:

1. That he is the duly commissioned inspector of mines for the Third

district of Pennsylvania under the act approved June 30, 1885, entitled "An act to provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania, and for the protection and preservation of property connected therewith."

2. That there is in said district at the village of Mocanaqua an anthracite coal mine operated by a corporation styled "The West End Coal Company," and Christian Coonrad is the mine-foreman of said coal mine, and did hold such office of mine-foreman on the 11th day of August, A. D. 1885, under rule one of article twelve of said act.

3. That the said mine is operated through a tunnel, and has been so operated about four years, during which time said mine has not, to the best of your petitioner's knowledge and belief, generated explosive gases.

4. That on the 11th day of August, A. D. 1885, noxious gases prevailed in said mine arising from the fires under the boilers, which are located therein, and the stoppage of the fan from eleven o'clock on the night of the 10th of August, 1885, until after the following day, to wit: the 11th day of August, 1885, aforesaid.

5. That the said Christian Coonrad did not, on the morning of August 11, 1885, make an examination of the working-places and traveling-roads of said mine before the workmen entered the same, or mark proof of the same at the face of each working-place.

6. That the said Christian Coonrad did not establish a station at the entrance to said mine as required by rule seven of article twelve of the act aforesaid, and did permit the workmen to pass into the said mine without having inspected the same or reported the same to be safe.

7. That the said Christian Coonrad, knowing that said fan was stopped and out of order, and that the fires were burning under the boilers in said mine, liable to produce noxious gas, permitted a large number of workmen to enter said mine for the purpose of mining coal, and did not withdraw them from the mine or notify them of the danger, and did not cause an examination to be made by a competent person as required by rule eight of said article twelve of said act of 30th June, A. D. 1885.

8. That among the workmen who were so permitted to enter said mine the following were suffocated by the noxious gas prevailing in said mine, to wit: Peter Burskie, Anthony Burskie, James Whelan, John Bilby, John Cygkoskie, Wilson Rymer, James Frey, Hiram O. Meade, Nicholas Bertelson, and William Zienty, and the said workmen died from the effects of such suffocation.

9. That the coroner's inquest held upon the bodies of said men found this verdict: "That the said (here the names of the men are repeated) came to their death as aforesaid through the criminal negligence of Christian Coonrad, the mine-boss as aforesaid." A full copy of the findings of said inquest is hereto attached and made part of this petition.

10. Your petitioner, therefore, believing that the said Christian Coonrad has been negligently guilty of an offense against the act aforesaid, whereby a dangerous and fatal accident has resulted to persons employed in such mine, prays your honorable court to issue a warrant as directed by article eighteen of said act, and cause the said Christian Coonrad to be brought before your honors, and that your honors will take such action thereupon as justice requires and to your honors shall, on hearing the testimony, deem proper and lawful.

And he will ever pray, &c.

G. M. WILLIAMS.

LUZERNE COUNTY, *ss:*

G. M. Williams, being duly sworn according to law, deposes and says that the facts set forth in the above petition are correct and true as he verily believes.

Sworn and subscribed before me this 22d day of August, A. D. 1885.

THOMAS H. ATHERTON,
Notary Public.

(Here was appended a full copy of the finding of the coroner's jury, with the certificate of Walker, J. P., acting coroner, that it was correct.)

The case was tried before Judge Woodward on September 10 and 12, and was argued Saturday, September 26. It was tried without a jury. On October 7, Judge Woodward filed the following opinion:

THE COMMONWEALTH OF PENNSYLVANIA *vs.* CHRISTIAN COONRAD. } In the Court of Quarter Sessions of Luzerne county. No. —, September session, 1885.

On the 24th August, 1885, upon the presentation of an affidavit of G. M. Williams, the inspector of mines for the Third district of Pennsylvania, under the act entitled "An act to provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania, and for the protection and preservation of property connected therewith," approved 30th June, 1885, we directed a warrant to issue for the arrest of the defendant, returnable on the 10th September, 1885. Upon that day the testimony of witnesses was taken, and subsequently we listened to the arguments of counsel for and against the defendant.

The facts of the case may be briefly stated. At Mocanaqua, in Luzerne county, there is a colliery operated by a corporation known as "The West End Coal Company." The mine is worked through a tunnel and slope, and Christian Coonrad, the defendant in the present proceeding, was and is the mine-foreman thereof. On the 11th of August, 1885, owing to the disarrangement of the fan by the breaking of a strap on the eccentric, and the bending of the crank shaft, the air-current in the mine became reversed, and the gas generated by the fire under the boilers was taken through the workings of the mine instead of being conducted through the proper channel to the outside. At the time when this occurred, a gang or

shift of men were at work in the mine as usual. The machinery connected with the fan was taken apart by the mine engineer, and sent to the proper shop for repairs, the fire under the boilers being kept up. The fan stopped about eleven o'clock on the night of the 10th of August, and the workmen then in the mines came out between one and two o'clock on the morning of the 11th. The next gang went in at seven o'clock on the morning of the 11th, at which time the repairs to the machinery had not been completed. No examination of the mine seems to have been made by the mine foreman before these men went in to their work. About eight o'clock, the alarm was given that the workmen were being overpowered by the poisonous gas in the mine, and, as rapidly as possible, efforts were made for their rescue. The result was, that out of fifty or sixty men who entered the mine at seven o'clock, ten were brought out dead, and between twenty and thirty more or less disabled. The cause of death is thus stated by Dr. Hughes, who was examined as a witness:

Question—State whether or not, on the 11th day of last August, you were at the West End Coal Company's works.

Answer—I was.

Q. Whether or not you examined the bodies of a number of victims of that accident.

A. I saw them all.

Q. How many of them were dead?

A. Ten dead ones.

Q. How many others were affected and lived?

A. I could not tell that—a great many, twenty or thirty, I presume.

Q. State what caused the death of these men.

A. They died from asphyxiation, from poisonous gas—noxious gas produced the death.

Q. How were these men affected?

A. Those that I saw were unconscious, and I can only judge how they were affected by the way I was affected myself.

Q. You went in the mine, did you?

A. Yes, sir.

Q. What were the symptoms?

A. Bad feeling about the head, weakness about the lower extremities, and considerable headache—had a great headache for a considerable time after.

Q. It was owing to the breathing of the noxious gases that prevailed in the mine?

A. Yes, sir.

The cause of the disaster is further explained by the testimony of Mr. Williams, the mine inspector, to which we now call attention:

Q. Will you state, from your examination, and your knowledge of mining and ventilating apparatus, what was the cause of this disaster?

A. The cause arose from the fan breaking, and the air-current reversing, taking the gases from the boiler fires into the working.

Q. What is the nature of those gases?

A. A carbonate oxide, and carbonate acid, perhaps mixed.

Q. They are the gases that are produced by the burning of the coal under the boilers?

A. Yes, sir. The fan is located between the boilers and the outlet, where the air is going out of the mine, and the heat from the boilers keeps the passage warm for a certain length of time. As long as the heat would be maintained at a higher temperature than the heat of the atmosphere outside, the air-current would pass out in the right direction. But if that should become cooler than the outside air, then the air would reverse and take the other course; consequently, it would take the gases from the boilers down through the workings.

Q. Was the danger arising from this cause an obscure or latent danger, or was it a danger which is, or ought to be, known to all men having charge of mines?

A. Well, that depends upon the experience and knowledge of the mine-foreman.

Q. If he is a man thoroughly qualified for his position?

A. Every foreman ought to know that when the elevation of the two openings in a mine is different—if one opening is higher that the other—every foreman ought to know that when the air is warmer outside than it is inside, the air-current will pass down through the higher opening.

The act of June 30, 1885, provides in article ten, section one, that "the owner, operator, or superintendent of every mine shall provide and maintain an adequate supply of pure air for the same, as hereinafter provided."

Section four of the same article provides that "the ventilating currents shall be conducted and circulated to and along the face of each and every working-place throughout the entire mine in sufficient quantities to dilute, render harmless, and sweep away smoke and noxious or dangerous gases, to such an extent that all working-places and traveling-roads shall be in a safe and fit state to work and travel therein."

Rule three, of the general rules, in regard to mines, contained in article twelve, is as follows:

"The mine-foreman shall have charge of all matters pertaining to ventilation, and the speed of the ventilators shall be particularly under his charge and direction."

The office of mine-foreman is created, and the duties of the office further explained by rule one, of the same article, in these words:

"The owner, operator, or superintendent of a mine or colliery shall place the underground workings thereof, and all that is related to the same, under the charge and *daily* supervision of a competent person who shall be called 'mine foreman.'"

Rule eight is as follows:

"If, at any time, it is found by the person for the time being in charge of the mine, or any part thereof, that by reason of noxious gases prevailing in such mine, or such part thereof, *or of any cause whatever*, the mine or the said part is dangerous, every workman, except such persons as may be required to remove the danger, shall be withdrawn from the mine, or such part thereof as is so found dangerous, until the said part thereof is examined by a competent person, and reported by him to be safe."

We have thus endeavored to state fairly, and as fully as necessary for the consideration of the case before us, the nature and cause of the terrible disaster at the West End colliery, on the 11th of August; and also to bring clearly into view those provisions of the act of June 30, 1885, which seem to be applicable to the question presented for our determination. That question is this: Was the defendant, Christian Coonrad, guilty of an offense against the act of Assembly by his failure to comply with its requirements, and did his negligence and failure to comply with those requirements result in and cause the disaster?

Without quoting the testimony of the witnesses at length, we have no doubt from the evidence before us that the defendant had knowledge of the fact that the fan had stopped, and that he did not prevent the workmen from going into the mine on the morning of the accident, notwithstanding this knowledge. Now, a mine-foreman ought to know that in a mine dependent for its ventilation upon such appliances as were in use at this colliery, the breaking of the fan, and the presence of fire under the boilers, would tend to produce a poisonous gas, and drive it through the mines. And that this defendant was aware of this is shown by the fact that he said to the driver-boss, the men "have no business down there" until the fan shall be started, as well as by other declarations made by him, which, while failing to amount to peremptory orders to the men to leave the mine, still serve to show that he was not ignorant of the danger. A very large proportion of the accidents, so called, which, from time to time occur at our collieries, is traceable to that species of negligence which comes of familiarity with danger, and a habit of taking the chances. But experience has shown that the business of mining anthracite coal cannot be prosecuted at hap hazard, but that success and safety are only to be secured by the most thorough organization of the forces employed, and by a rigid obedience to the rules and regulations adopted and prescribed. A coal mine at best is a dangerous place. The men who, day after day, go in the mines are exposed to more peril, and encounter hazards of a greater variety than those engaged in almost any other occupation. And it is in view of such considerations that our legislation on the subject has been directed to framing a statute, which has for its subject, as its title indicates, "to provide for the health and safety of persons employed in and about the anthracite

coal mines of Pennsylvania, and for the protection and preservation of property connected therewith." And while it is true that this statute is a penal one, and as such, according to the maxim of the law, is to be strictly construed, it is also true that the wise and benevolent purpose of the act is not to be defeated by judicial refinements and an over-sensitive regard for possible doubts. We adopt the language of Mr. Justice Thompson, in Bartolett *vs.* Achey, 38 Penn. St., 277: "I admit that the statute * * * being a penal statute, is to be strictly construed; but this means no more than that nothing is to be taken against the party charged by intendment. The meaning of the statute, if plain, is to be followed, notwithstanding, as in any other case. * * * Strict construction is not the same thing as construing everything to defeat the action. This is not what is meant by the expression."

The act of 30 June, 1885, imposes upon the mine-foreman duties of the most important character. He is clothed with great power, and made responsible for the faithful exercise of his authority. He is to have the charge and "daily supervision" of all the underground workings, as well as to all matters pertaining to the ventilation of the mines. Under rule eight, to which we have before referred, if, by reason of noxious gases, "or of any cause whatever," the mine or any part of it becomes dangerous, every workman is to be withdrawn from the mine, and not be allowed to reënter it until after a proper examination of, and report upon, its condition. It would seem to have been the intention of the framers of this act to concentrate in the mine-foreman the chief magistracy, so to speak, of the mine. If he is unable to give his personal attention to all the details of the mining operations, it is provided by rule two that the owner, operator, or superintendent "shall authorize him to employ a sufficient number of competent persons to act as his assistants, who shall be subject to his orders." Our attention has been called to the fact that this act of Assembly had been approved but little more than a month before the disaster at this colliery occurred, and had not been published. This, of course, would not relieve us of the obligation to enforce the law, but at the same time, in the case of an entirely new system of legislation, it might incline us to a more tolerant and less exacting view of the circumstances than we should otherwise feel bound to adopt. But the truth is, that so far as regards the duties of the mine-foreman or boss, there is no material difference, as respects the question now presented, between the recent act of Assembly and that of March 3, 1870. The eighth section of that act provides that every coal mine and colliery "shall employ a practical inside overseer, to be called mining-boss, who shall keep a careful watch over the ventilating apparatus," etc.

As we have before said, there can be no doubt that the defendant was fully informed of the accident which had interrupted the working of the fan before the workmen had entered the mine on the morning of the 11th

of August. Nor can it be doubted that he was an officer of sufficient intelligence and familiarity with the business of mining to know that the mine was liable to become dangerous by reason of this state of things. What, then, was his duty? Clearly, to permit no one to enter the mine except such person or persons as would be prepared and competent to make a careful and skillful examination and report. There is some evidence in the case that the defendant did warn some of the workmen not to enter, and notified them that the fan had stopped. But notice and warnings were not what the occasion and the circumstances called for—a stern and peremptory command was the one thing needful, and that the mine-foreman, as the commander, had the right to give.

It is admitted that this mine did not generate what are known as "explosive gases." Those portions of the statute which prescribe the rules and precautions to be observed in reference to mines generating such gases are, therefore, not those to which we must refer ourselves in the present case. We have considered it as a case arising under other sections of the act, and especially in its relations to rule eight of article twelve, and to article ten, which is devoted to the subject of ventilation. And it seems to us that, under the evidence in the case, the defendant was guilty of neglect, and of a failure to comply with the requirements of the statute.

That the disaster which occurred was the result of this negligence on the part of the mine-foreman, we can see no good reason to doubt. Dr. Hughes, who reached the scene of the disaster shortly after it happened, and whose testimony has already been noticed, describes his sensations as he entered the mine. Other witnesses bear testimony to the same effect. There is nothing in any of the evidence taken which tends to show that a careful and thorough examination of the mine on the morning of the 11th of August, by a skilled and competent expert, such as a mine-foreman is supposed and ought to be, would not have disclosed the presence of noxious and dangerous gas. The failure to make such an examination, and the death of the ten men who perished in the mine, stand, therefore, in this case, in the relation of cause and effect; for it is not to be presumed for a moment that if the true condition of the mine had been known the workmen would have been permitted to incur a danger with which no courage, no power of will, nor strength of body, was competent to cope.

It is made our duty by article eighteen of the statute to ascertain in a case like the one under consideration, whether or not the defendant is guilty "willfully or negligently" of any offense against the provisions of the act. After a careful consideration of the case, as presented to us by the testimony of the witnesses and the arguments of counsel, we are of the opinion that Christian Coonrad is guilty of negligence, and of an offense against the provisions of the act of Assembly of 30th June, 1885. It only remains for us to impose upon him the sentence of the law.

Stanley Woodward, *Judge.*

On Monday, October 12, the defendant appeared to hear the sentence of the court. His attorneys made a very earnest plea for light punishment, inasmuch as this was the first case under the new mine laws, and no copies of the law having yet been printed, the defendant had had no opportunity to know its requirements. The sentence of the court was that he should pay a fine of fifty dollars and costs of prosecution.

This is the highest fine that can be imposed under the present law for offenses of this class, but imprisonment may be added if the court thinks it proper and justifiable. This case was brought on soon after the present law was enacted, and only a few had seen copies of it, and, owing to this and the earnest pleading of the counsel for the defense, the sentence was, perhaps, moderated.

DESCRIPTION OF FATAL ACCIDENTS.

Fatal Accidents by Explosions of Gas.

ACCIDENTS, Nos. 8 AND 9.—James Solomon and John D. Jones, both laborers, were fatally injured by an explosion of gas in the Hillman Vein shaft, Wilkes-Barre, February 17, 1885. The former died from his injuries the same day, and the latter died on February 26. Eleven persons besides these were more or less injured by the same explosion. The accident happened at about ten o'clock, A. M. One of the bearings of the fan heated from some cause which could not be definitely ascertained, and caused the fan to retard speed and finally to stop for about ten minutes. In the meantime, a messenger was sent to call the workmen out of the mine, but just as he arrived in the gangway, the explosion occurred, injuring him with the others. It is a very gassy mine. With no ventilation, enough gas will accumulate in ten minutes to cause a terrific explosion, and it happened so on this occasion.

ACCIDENTS, Nos. 18, 19, AND 20.—Frank Fartkofskey, a miner, Joseph Grudofskey, a laborer, and Christian Powell, a brattice-man, were fatally burned by an explosion of gas in the No. 4 slope, Nanticoke, June 4, 1885. This accident was the result of the inexcusable heedlessness and stupidity of the two Polanders, Fartkofskey and Grudofskey, the former most particularly, as he was the miner. The fire boss, while examining the mine that morning, had discovered a check-door open which had caused a large body of gas to accumulate at the face of the two breasts between which the said door was located. He closed the door, but, knowing that the two upper cross-cuts between the two breasts were open, he thought the gas would not be swept away. Therefore, upon seeing the miner Fartkofskey at the fire-boss station, and also his laborer, he told them that a large body of gas was in the breast, and gave them positive orders not to go up from the gangway until he (the fire-boss) would come in and give them permission. They went in and waited a short time on the gangway, but, being desirous of going to work, they went up the breast for that purpose. The

PLAN OF MINING

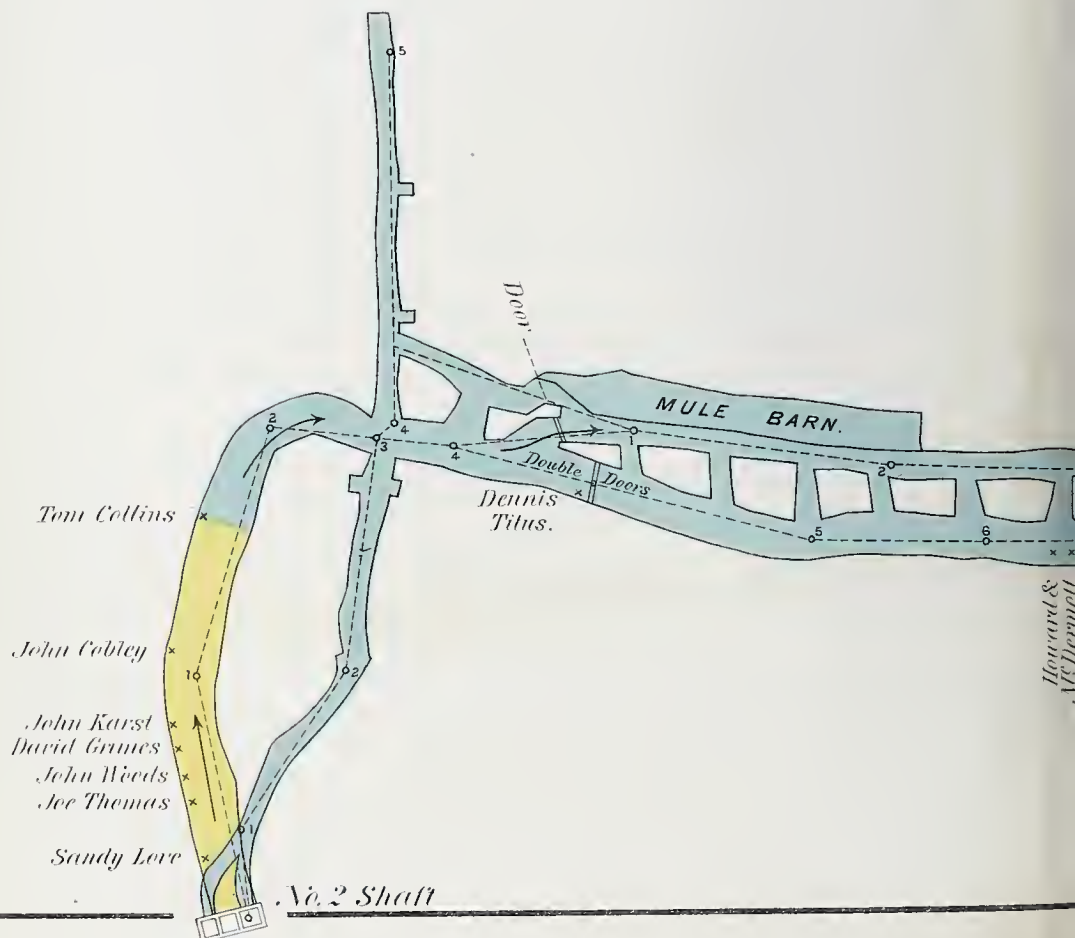
in the

HARKNESS TUNNEL *in* No. 2 SHAFT,

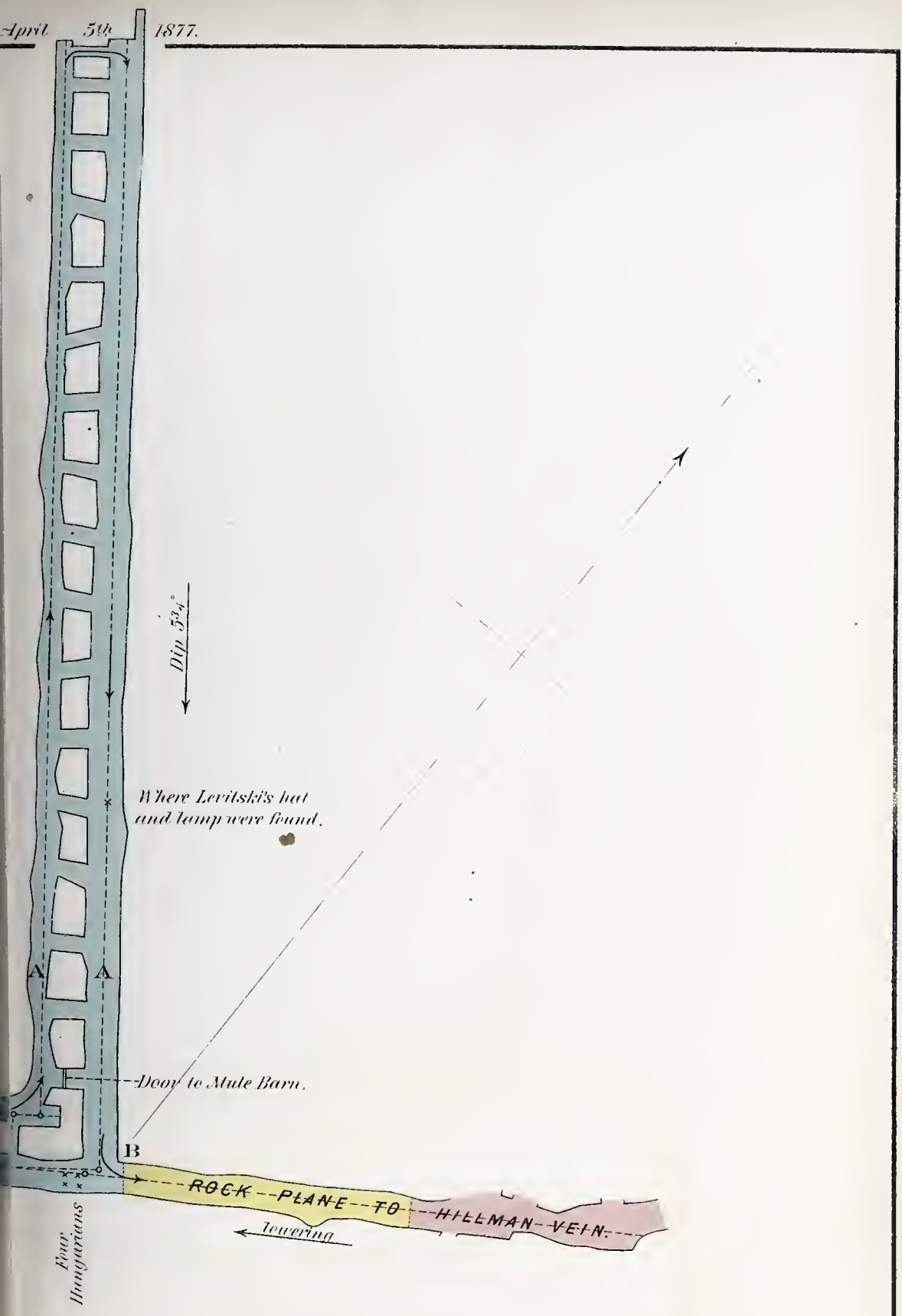
Plymouth, Pa.

The Scene of the Explosion of Fire Damp on Wednesday Morning October 21st 1885.

SCALE — *100 Feet to an Inch.*



April 5th 1877.



Course of Air Currents shown thus ——→
Where men were found after Explosion thus ×

brattice-man, Powell, and his assistant were about going to close the lowest of the two open cross-cuts, saw the two Polanders going up the outside breast and drove them back to the gangway, cautioning them to remain there until the fire-boss came in. After closing the cross-cut with boards, Powell and his helper were in the inside breast. The latter took the tools down toward the gangway, while Powell went up with a safety-lamp to see whether the gas was moving away or not. At the same time, the Polanders stole up the other breast, and meeting the gas, fired it from their naked lights. In the explosion which followed, both Powell and they were fatally burned.

Accidents, Nos. 50 to 55 Inclusive.—Frank Lamaraux, John Kerst, and Dennis Titus, Carpenters, Frank Spinnette. Anthony Spinnette, laborers, and Thomas Collins, miner, were fatally burned by an explosion of fire-damp in the No. 2 shaft, Plymouth, October 21, 1885. There were ten other persons severely burned at the same time. The mine had been idle for over nine months, and a few days before this accident occurred, a number of men were set to work repairing the inside barn and repairing the tracks and putting them in order for starting operations in the mine. At seven o'clock this morning, they descended the shaft to their work, as they had done the other mornings. There are two seams mined in the shaft, one at the bottom and another about midway in the shaft. Part of the men got off at the upper seam, called the Tunnel, and the others descended to the lowest one. The passing branch at the Tunnel landing is made in a dirty seam of coal which is not mined, at the terminus of which a rock tunnel (see rock plane on plan) was driven up to the Hillman seam on a grade, so that the coal mined in the latter is lowered by gravity. All the coal hoisted from this landing was mined in the Hillman seam and lowered over this rock gravity-plane to the passing or double branch at the shaft. At right angle to the gangway at the foot of this plane, two parallel openings had been driven about seven years ago to a distance of about six hundred feet and had been abandoned, (see AA, on map.) It appears that these two places were filled with fire damp on this morning to a point not far from the gangway. About eight o'clock John Levitzkie, one of the laborers, not knowing that any danger existed, went up one of these places at X and fired the gas. He was severely burned and he ran out and up the plane, when the men who worked there met him and took him out through the No. 1 shaft. No one else was hurt from this explosion. Dennis Titus and the others who worked with him in the barn ran down to the gangway and saw the flames extending out of the old opening at B and part of the way up the plane. He then sent a young man (his helper) out to tell the boss. This young man ascended the shaft and saw Howard, the acting fire-boss, and three machinists ready to descend. They descended with him and got off at the tunnel landing. The young man stayed on the cage and descended to the bottom seam. He there met the boss and was telling

him of the accident, when another explosion occurred, the concussion of which was very forcible. They ascended the shaft immediately to the tunnel, and found those who were able to walk coming out toward the shaft, (see plan.) Dennis Titus was instantly killed, and his body was found under a car about four hundred feet from the shaft. All the others were severely burned, and five of them died shortly after from their injuries.

The cause of the accumulation of such a large body of gas is not yet definitely explained. The coroner held an inquest, but he selected a jury which proved utterly incompetent. Some of them had been working, more or less, in coal mines, but it was evident that they knew nothing of the principles of mine ventilation, nor of the laws governing gases in mines, consequently their verdict was very unsatisfactory. They attributed the accumulation of gas to the fact that a double door, which was on one track of the double branch, had been allowed to stand open for a short time, yet this place was left without a door for two weeks after the explosion, and some of the jury were invited and went to see the effect, and no gas was found to have accumulated. It was proven conclusively that the neglect of this door was not the cause of the accumulation of gas, and that sufficient air circulated through the abandoned places to keep them safe without the door. In view of this fact, some other cause must have existed for the accumulation of the gas. One of the old openings was a continuation of the air-way turning right angle; the other was opened from the gangway at foot of the plane. In the lowest or first cross-cut there was a small man-door (see door to mule barn) placed to enable persons to pass from one place to the other without going around the faces. This had rotted, and fell down during the idle time, leaving a passage for the air-current to cross without going around the faces. This, and the stoppage of the fan for repair, &c., would leave the old openings unventilated, and, consequently, the gas evolved therein would accumulate in a large body; but the fire-boss swore that he examined both places three days prior to the accident, and found them clear of standing gas. If he tells the truth, the presence of a body of gas on the morning of the accident is a mystery which cannot be explained; but if he does not tell the truth, and had not examined the said places since starting to work, the facts stated must have been the cause of the fire-damp accumulating. They had not seen standing gas in these openings before for seven years, and, if they had suspected its presence on this morning, the accident could have very easily been averted.

Fatal Accidents by Falls of Roof and Coal.

There were 38 severely injured and 17 deaths from falls of roof and coal in the Third district during 1885. Accidents of this class occur nearly in the same manner continuously, and at least three fourths are the result of too much haste or too much indifference to the dangers which may

exist from loose coal or roof. Some rush back to work too soon after blasting, and do not use proper precaution in approaching the face while the place is full of powder-smoke, making it impossible to see loose rock or coal. Others stand in a reckless position to pry loose coal or rock down with a drill or bar, and are caught under it when it falls. It is unnecessary to describe this class of accidents in detail, as that has been done in previous reports, for they occur nearly in the same manner every year.

Accidents by Falling Down Shafts.

Four fatal and one non-fatal accident happened from this cause in the Third district during 1885. The fatal ones are described as follows:

Accident, No. 5.—Daniel Eagan, a sinker, was killed by falling down the Woodward shaft, No. 1, January 26, 1885. The deceased and Edward Devons were standing on the edge of the bucket while being hoisted up the shaft. Upon reaching the landing, apprehending something wrong by seeing the bucket hoisted above the usual height, both jumped off. Devons escaped, and Eagan fell back down the shaft, a depth of over 900 feet. The engineer failed to stop the engine, because the latch-pin of the reversing-lever dropped out of place, and, in his excitement, forgot to apply the brake until he heard the shieve-wheel and head-structure pulled down toward the engine-house.

Accident, No. 13.—Michael St. John, a sinker, was killed in the Woodward shaft, No. 1, April 13, 1885. There were five men besides the deceased working on a platform about 60 feet from the bottom of the shaft. St. John was wedging the end of a buntin, while the others were raising a part of the platform to buntins four feet higher. After he had fastened the buntin, he stooped suddenly and crossed under it, stepping over the end of that length of platform, and fell to the bottom of the shaft and was instantly killed. Being absorbed in his work, he evidently forgot that the platform had just been raised from that end of the shaft.

Accident, No. 14.—Frank Dinany, a driver, instantly killed by falling down the Nottingham shaft, Plymouth, April 15, 1885. At about six o'clock, p. m., Henry P. Thomas and the deceased were going to work on the night shift. The east cage was standing at the landing, and they both went on for the purpose of descending, without informing the engineer. While they were in the act of pulling the gate down, after passing on the cage, a signal was given from below to lower the other cage, and the engineer immediately started the engine. When the cage was raised, Dinany, having hold of the gate, lost his balance and fell down the shaft.

Accident, No. 49.—Ivor Williams, a door-boy, was killed in the Dodson shaft, October 15, 1885. There were nine or ten persons on the cage ascending the shaft at quitting time; the deceased was among them. When within about forty feet to the top, he fell against the side of the shaft and down to the bottom. None of those who were on the cage noticed how he

fell, it happened so quick. He was leaning on the guard rail, and his clothing may have caught the side of the shaft and pulled him off. It was a very safe cage, guarded well with railing all around.

Accidents by Being Crushed by Mine Cars.

Thirty accidents occurred from this cause during 1885, six of which were fatal. This class of accidents are nearly all the result of carelessness, and it is difficult to prevent them for that reason. The fatal ones happened in the following manner:

ACCIDENT, No. 1.—Frank Shivitzkey, a driver, was instantly killed in the No. 1 slope, Nanticoke, January 8, 1885. He was driving a team of two mules; was riding on the front end of a trip of four loaded cars coming out of the upper west gangway. After going a distance of one hundred yards, in some unknown manner, he fell, and the cars ran upon him, dragging him a distance of about ten feet, killing him instantly. No one witnessed the accident, but he was found under the cars dead. The gangway was thirteen feet wide at that point, and there was ample room on both sides of the cars. He evidently slipped while trying to hang on the front car, and was caught and ran upon.

ACCIDENT, No. 3.—Paul Polinskey, a laborer, was fatally hurt in the No. 2 shaft, Nanticoke, January 16, 1885. He had gone from the face of the breast where he was working, a distance of about seven hundred feet; was standing with his back against a prop. The runner was bringing a car down by brake, and running quite fast; it jumped the track and ran against the deceased. The prop stood over three feet from the track, and there was ample room behind it, but the stupid fellow stood coolly in the most dangerous position that he could find, and lost his life thereby.

ACCIDENT, No. 6.—Enoch Jones, a driver, was fatally hurt in the Lance colliery, Plymouth, February 2, and died therefrom February 5, 1885. Jones was working on the night shift. He pulled a car out of the gangway to a point a few feet inside of one of the breast branches. An empty car was standing on the gangway outside of this. He hitched the mule to this car and was hauling it to the breast, when the mule, stepping on the latch, caused the car to run on the gangway track. The driver, being on that side, was jammed between the two cars. This was what we may rightly call an accident. The boy did not suspect that such a thing as the car taking the wrong track might happen.

ACCIDENT, No. 26.—Patrick Gallagher, a laborer, was fatally injured in the Warrior Run mine, July 3, 1885, and died on the 5th of the same month. John Owens, the door-boy, walked up the run to tell the runner to run the cars down. On going up, and also on returning, he saw Gallagher sitting on the platform of the breast where he was working. The cars were run down, and they stopped about six feet outside of the said platform, and the runner having seen a light as if struck by the cars went

forward and found Gallagher under them severely injured. He had stepped down to the gangway just as the cars were approaching, and was struck down and run upon.

Accident, No. 29.—John Smith, a miner, was fatally injured in the Alden mine, July 18, 1885, and died in a few minutes after. Smith was working one of a number of breasts turned off a run. He and his laborer were standing on the platform near the gangway when the runners were running the cars down from each platform. One car had passed while they were there, and one runner called the other to run another down. At this time, Smith stepped down to the gangway to show the tickets to the laborer, (a strange one,) when the car, having four sprags in the wheel, came noiselessly and struck him down, and ran over him. He died in a few minutes.

Accident, No. 30.—John Adomzack, a laborer, was fatally hurt in the No. 2 shaft, Nanticoke, July 27, 1885, and died from his injuries, July 29. The deceased was working with Frank Nicklass, a miner, who, when the accident occurred, was about going to extend the track in his breast. The loaded car being in the way, he and his two laborers went to run it down a short distance. The deceased was at the brake on the front end, while the miner drew the stopping-block. After starting, the brake proving useless, the car ran away down the breast, crushing through a door, where the laborer, who had clung on all the time, was severely injured. He here fell, and the car ran upon him and stopped. He died at the time stated. The miner, in this instance, ought to have examined the brake carefully before undertaking to move the car, especially when the lever was forward or on the front end of the car.

Accidents by Explosions of Powder and Blasts.

Twenty-six accidents occurred of this class, during 1885, and six of them proved fatal. Several of this class of casualties happen in a mysterious manner, and cause much doubt as to the safe construction of some of the squibs used. In a number of cases, the squibs have exploded instantly upon igniting the match, proving that either the squibs were defective when bought, or that they had been made so by tampering with them. No doubt many miners are careless in handling the squibs, and often cut the match too short. By cutting the match, also, they are apt to untwist it, so as to leave the powder run back near the point of ignition. Many accidents occur also owing to the haste of miners to return, concluding that the squib is missed, when in fact the match has not had time to burn to the powder, and upon their return the blast explodes. These are some of the causes of this class of casualties which so frequently prove serious.

Accident, No. —.—Michael Haley, a miner, was seriously injured in the Gaylord colliery, Plymouth, March 20, 1885, and died the following day. He was working a breast in the Red Ash seam, which is about eighteen

feet thick. He was firing a blast in the top bench, which was mined first. He fired the match, and ran about seven yards, when the blast fired. A lump of coal thrown by it struck him on his head, fracturing his skull. He was unconscious when found, and he remained so until he died.

ACCIDENT, No. 23.—Richard Emmitt, a miner, was fatally injured in the Hollenback mine, Wilkes Barre, June 22, 1885, and died in fifteen minutes after. While he was in the act of igniting the match, the squib instantly took fire and exploded the blast. He had no time to move. It was a Daddow & Beadle touch-squib, but whether the fault was in the squib or in him could not be ascertained. He was an old miner and was generally careful at his work.

ACCIDENT, No. 27.—Michael Furtie, a laborer, was instantly killed in the Reynolds mine, Plymouth, July 6, 1885. The deceased had gone to work on the night shift to help another laborer who was working with Joseph Short. The three were Polanders, and it appears from the evidence obtained that the three were intoxicated. They were beginning to open a breast from the gangway. John and Patrick O'Neal, brothers, were driving a cross-cut from the air-way below, which was expected to break through the pillar to the gangway opposite where the Polanders were opening the breast. Short was back at his box preparing powder while the two laborers were drilling a hole, when the two O'Neals were firing a shot in the cross-cut. They came up to the gangway and gave the usual alarm, but the two laborers, being drunk, paid no attention to it. They shouted fire several times, but the laborers continued at work until the shot fired and burst through the pillar, killing Furtie instantly. The other laborer escaped without injury.

ACCIDENT, No. 28.—Llewellyn Daniels, a miner, was instantly killed in the No. 2 slope, Nanticoke, July 8, 1885. Daniels had a very wet hole to fire. His laborer, Benjamin Adams, helped him to charge it and then was taking the tools back when the shot fired. Daniels had not moved from the hole when it fired and he was instantly killed. The laborer and another man, who was driving a cross-cut close by, very narrowly escaped without injury. The deceased was a very hasty man and was making the matches very short when firing blasts. The match on this occasion was cut too short, and he lost his life owing to it.

ACCIDENT, No. 58.—Henry McCloskey, a miner, was fatally burned by an explosion of powder in the Maffit mine, November 16, 1885, and died at the hospital November 24. While he was filling a cartridge with powder, a spark flew from his lamp and fired it; this again fired the powder in the keg, two thirds full, burning him severely. If he had observed the law and complied with it, his lamp would have been in such a position that this accident could not have occurred in the manner it did.

ACCIDENT, No 62.—John Lynot, a miner, was fatally hurt in the Empire mine, Wilkes Barre, December 5, 1885, and died December 8. While firing

a blast in the top coal, the first squib missed. He then returned and tried another. Supposing this missed also, he was going back the second time, when, as he was approaching the hole, it fired, breaking down about five tons of coal. Part of this struck him, cutting his leg nearly off and bruising him badly about his head. He was removed to the hospital and died there at the time stated.

Accidents from Miscellaneous Causes Underground.

Fifty-nine accidents occurred in this class during 1885. Thirty-nine were fatal. Ten persons were lost at once in the West End colliery and twenty-six in the No. 1 slope, Nanticoke.

Accident, No. 4.—Thomas Smith, engineer, was killed in the Stanton shaft, Wilkes-Barre, January 20, 1885. The water had gained on the pump in the shaft and a bucket was used instead of one of the cages to hoist water. Smith was running the pumping engine and was on the night-shift. About half-past six, A. M., his curiosity led him to descend the shaft to see how low the water was. Because the bell-wire was frozen fast to the buntins, he made arrangements with the hoisting engineer to lower the cage as far as the surface of the water, which was about four feet above the track at the bottom, and after waiting two minutes to hoist it up again. When the cage came up Smith was not on. It was lowered again and held down a short time, but came up without him again. Then, after searching for several hours, his body was found in the sump under water, the marks upon which indicated that he had been caught between the cage and buntin. Several theories were suggested in explanation of the manner it occurred, but none of them could be definitely proven to be right.

Accident, No. 7.—John Hennesey, a miner, was kicked in the abdomen by a mule, in the Avondale mine, near Plymouth, February 7, 1885, and died the following day. The mule kicked him while passing him in the mine.

Accident, No. 15.—George Williams, a sinker, was fatally injured in the South Wilkes-Barre shaft, April 23, 1885, in the following manner: While working with several others at the bottom of the shaft sinking, it was supposed that a small piece of rock, falling from above, struck him on his head. He fell suddenly, and when his fellow-workmen raised him up his skull was severely factured. No one heard the stone falling, but from the nature of the injury it is believed that it was caused in that way. He was removed to the hospital, and died there in a few hours.

The West End Disaster.

The West End colliery, near the village of Mocanaqua, across the river from Shickshinny, was the scene of a shocking disaster on the 11th of August, 1885. Ten men lost their lives from breathing the poisonous gases which arose from the fires under the boilers in the mine. The mouth of

the drift through which the coal is brought out of this mine is four thousand five hundred feet east of the breaker, and the mine cars are hauled from a turnout two thousand feet inside of the drift-mouth to the breaker. All the workings between the mouth and the turnout above water level were finished, the coal having been mined out to the outcrop. At the inner end of the turnout there is a slope sunk diagonally down the pitch on a small grade about six degrees, to a distance of one thousand two hundred feet. There were workings on each side of the slope. The coal above water level is mined above a gravity-plane, between that and the outcrop. The foot of the plane is about five hundred feet inside of the head of the slope. Owing to the difficulty of obtaining water on the surface, the boilers which generate steam to run the slope engine and the fan engine were placed in the mine a short distance below the head of the slope on the left side, where the air-current returns to the out-cast. The fan was located about three hundred feet away from the boilers, between them and the out-cast, and from the fan to the mouth of the up-cast there was a distance of over one thousand feet, rising on an average grade of about fifteen degrees. Thus the air-current first passed through the workings of the slope, and then up behind the boilers, taking with it the gases arising from the fires through the fan, and directly out through the up-cast. On the night of the 10th of August, at about eleven o'clock, the eccentric strap on the fan engine broke, and the fan stopped running. There were a few men working on the night shift, but as they had never seen or heard of dangerous gases being generated in the mine, the stoppage of the fan caused no alarm, and they finished their night's work before leaving without suffering any inconvenience from lack of ventilation. By half-past seven next morning, the eccentric strap was repaired ready to take into the mine, and the engineer, machinist, and mine foreman together took it with them, and rode from the breaker on the locomotive train into the mine. There were from forty to fifty workmen riding in on the same train. All knew that the fan had broken and was not running, but it seems that no one apprehended any danger. Upon reaching the turnout at the head of the slope, the mine-boss and the machinist took the strap toward the fan, and the workmen went on to their working-places. At this time it was believed that the fan could be fixed to run in about half an hour, but after putting the eccentric strap in place, the engine was started, and it would not run. The boss and others went in to the fan several times to pry it off the center, and finally they discovered that the fan-shaft was bent so that it could not run. Messages came to the boss, at this time, that the men were getting sick down the slope by inhaling foul air, and could not walk out. The boss himself was affected in the same manner by inhaling the noxious gases in the fan, and he soon became unconscious.

The air was healthy on the west side of the slope, and the men from that side ran to assist those on the other side; but the subtle poison was

such as to effect them again in a short time, and it proved a difficult task for even these to escape. Many fell unconscious and had to be carried up the slope and sent out in cars. By mid-day a large number had to be carried out, being unconscious, three of whom were dead and seven more missing, nearly every one who worked in that mine having been helping. The slope-men were, by this time, sick from inhaling the gas. A fresh relay of men came in the afternoon and succeeded in bringing out the bodies of the remaining seven. They were found lying at various points on the gangways of the east side workings. The names of those who died are Wilson Rymer, John Bilby, Nicholas Bertels, James Fry, Hiram O. Meade, John Winskoski, Peter Boruzki, James Whalen, William Zienti, and Anthony Boruzki. The cause of the accident was that, during the time the fan was not running, the air-current reversed, and instead of conveying the gases produced from the combustion of coal under the boilers out through the up-cast, the air came in that way, and conveyed the gases down into the workings, and the men who worked in those workings which it entered first were the ones that suffered first from inhaling it. The air-current must have changed its course only a short time before the men entered their places. Upon entering, they were taken sick immediately after reaching the faces of their working-places, but were reluctant to leave so soon, believing that the fan would start and refresh the air every minute. However, they finally started out, and the ten named fell and failed to reach a point where the air was pure. Others fell in the same manner, but were rescued by workmen from the other parts of the mine.

The night and morning were very warm and close, and when the temperature of the up-cast air became cooler than the temperature of the air outside, the current naturally reversed. The mine-foreman did not expect this to take place, and, believing that there was no danger, permitted the men to go to work. It was here he made a serious mistake. Whether he thought it was safe or not, he should not have permitted them to go to work until the fan was set running and the working-places examined and ascertained to be safe; but, having never seen any danger in the mine, these precautions were overlooked.

Esquire Walker, of Shickshinny, empanelled a jury, and held an inquest on the deaths of the victims of this accident, and in their verdict they laid the blame for its occurrence on the mine-foreman, Christian Coonrad. He was prosecuted for violation of the mine laws, and was convicted. (See another part of this report for account of the prosecution.)

A Disaster in the No. 1 Slope, Nanticoke.

At about ten o'clock, A. M., December 18, 1885, a large body of quicksand and water broke through the roof into the Ross seam workings of this mine, causing the death of twenty six persons. Since the accident at the West Pittston mine in 1871, no disaster has been so fatal to human life

in the anthracite coal fields as this one. The No. 1 slope was sunk on the lowest, or Red Ash seam, and this seam is nearly all worked out, so far as it can be mined from this slope. In 1881, a tunnel was driven from the third lift at a distance of about 120 feet west of the slope to the Ross seam, the next one above. This tunnel reached the vein at a distance of 487 feet horizontally. Since then the workings in the Ross seam have been extended to the extent described on the accompanying map. For the first 2,000 feet the average dip of the seam is about 18 degrees. Here the gangway curves sharply around the synclinal of a basin, and back on the strike of another dip, and again around the saddle of a small anticlinal. (See map.) Most of the persons lost were working in breasts on this saddle, and within a short distance of the point where the sand broke in. There were four persons working in the basin, at the foot of places driven up to the counter-gangway on top of the saddle. (See B on map.) One of these escaped and said that he saw the other three struggling in the mud behind him. Those three are among the lost. The two drivers, the runner, and door-boy, had gone in with cars about half an hour before the sand broke in, and it is supposed that they had reached the miners who were working on the anticlinal before the accident happened. In less than one hour from the time it broke in, the gangways were completely filled from floor to roof, all the way out to the slope, and up part of the way into the breasts. All the men who worked the breasts on the right of the straight gangway escaped through the faces of the breasts and out through the air-shaft. Upon exploring the workings above the sand-level, a mistake was made in the location of the cave, and, while laboring under this mistake, it was generally believed that the men who worked on the saddle described were on higher ground than that which the sand had filled, and, consequently, were probably all alive. A large gang of men were at once set to work to effect a passage through the sand down a breast at a distance of about 2,000 feet from the air-shaft, and by Monday evening, December 21, they had reached the bottom of the basin, right opposite a hole which had been driven on the opposite side or other pitch, to the counter-gangway on top of the saddle. As far as they could see with the light of a Clanny safety-lamp, this hole was clear of sand, and they were greatly elated and encouraged by the prospect, believing that they could rescue the entombed men in a few hours. The said hole was rising about 45 degrees, too steep to climb up without ladders or steps, and orders were promptly sent out for ladders. While waiting for them, an old battery was cut out of the way at the bottom of the hole, and occasionally, while doing that, small quantities of dirt were noticed to fall from above, which caused them to be watchful and ready to retreat in case a rush should come.

Shortly after cutting the battery away a large quantity rushed down and drove them all back. The passage made through the sand was only three

and a half feet high and about the same width, and it was made a distance of about two hundred and fifty feet. The *débris* had to be carried away in buckets, and at this time there were about sixty men employed, one behind the other, handing the buckets back and forth. It was thought difficult for so many to escape in case water and sand rushed in again, therefore seven or eight only returned to see what fell, and while they were at the bottom it rushed down again, and filled the passage all the way up to about twenty feet higher than when they started to make it, and the men escaped only by the greatest exertion. If the whole number had returned, there is no doubt that the most of them would have been caught, and added to the number already entombed, but, fortunately, the few that had returned were not so much in one another's way, and they escaped. With this unexpected occurrence, all hopes of rescuing the entombed men alive were dispelled, and a gloom of disappointment was wrought on every one's countenance. This also caused the officials to think that probably the sand bar broke at the top of the anticlinal or saddle, and the engineers were set to work to locate the hole seen on the surface on the map of the workings. This hole was a deep cone-shaped depression on the culm bank, and was about three hundred feet diameter on top. When the survey was done, it proved that the cave broke in near the solid at the face of the counter-gangway on the apex of the anticlinal, and that all the entombed men were very probably caught and killed soon after the sand broke into the mine. It also showed that the only way to recover them would be by clearing the gangway from the slope in until they were found, and this work was commenced at once and pushed vigorously up to the date of this writing, February 25, 1886. The sand was found to be packed tight from the floor to the roof in the two gangways, and although they have cleared the main gangway to a point within two hundred feet of the curve, not one body has yet been recovered. The officers of the company fear another rush of quick-sand when the gangway is cleaned to the curve, and the probabilities at present are that that will take place. If it does, the bodies can never be recovered, and it is doubtful, also, whether the workmen who are clearing the gangway can escape if it should rush in under the great pressure supposed to be behind it. The danger apprehended has been fully explained to them, and it is their will, at present, to work on and see whether the bodies can be recovered or not, but the officers, apprehending danger to those working in other lifts as well as to them, may conclude to abandon the work.

This accident is a remarkable one, nothing like it having occurred before in the anthracite coal regions of this State. Any one visiting the mine prior to the accident would have pronounced it one of the safest mines in the region. The pillars were large and regular, the roof strong and safe throughout, as far as appearance indicated. There was no crush, nor anything to create alarm, or to give the least sign of danger. No one suspected that it was possible for danger to exist from quick-sand. The No. 4 tunnel workings

were in the same vein, and higher on the pitch, between this and the outcrop, and had mined nearly one and a half miles further without encountering trouble of this nature. The levelings showed that there were two hundred and sixty-two feet of strata right over the vein at the point where the sand broke in, and it was supposed that about two hundred feet of it was rock. The surface where it broke in was covered by a culm-bank, forty-seven feet high, and this was up on the side of a dry sand-hill, somewhere about sixty or seventy feet above the level of a creek. The rock is seen on the surface above the culm-bank, and also below it at the creek, but between these two points the rock seems to have been washed away to a depth approaching closely to the vein, and again replaced by sand and water. The appearances of the surface are such that no one suspected that such a depth of sand existed there, and, therefore, no one could have foreseen the possibility of such a calamity as that which happened. It was such that no blame can be attached to any one, for every practical precaution was taken to mine the coal so as to insure safety of the mine and the workmen employed.

The names of the entombed persons are: Joseph McCarty, miner, aged twenty-five; Abram Lewis, miner, aged thirty-five; Edward Margraves, miner, aged twenty-two; Oliver Kiveler, miner, aged thirty-two; Frank Kiveler, miner, aged thirty; August Matule, miner, aged forty-five, Isaac Sarver, miner, aged twenty-six; Andrew Low, miner, aged twenty six; Vincent Luke, miner, aged twenty-three; John Nowack, miner, aged twenty-six; John Drajno, miner, aged thirty-five; Edward Mathews, laborer, aged twenty; Thomas Williams, laborer, aged twenty-two; Michael Adomchick, laborer, aged twenty-four; William Kiveler, laborer, aged eighteen; John Shutt, laborer, aged twenty-eight; John Sarver, laborer, aged twenty; John Hawk, laborer, aged twenty-six; Wadislaus Jelgoshinskie, laborer, aged twenty-four; Peter Motulewick, laborer, aged twenty-five; Adam Rubinskey, laborer, aged twenty-six; John Sloff, laborer, aged twenty-seven; William Elkie, runner, aged seventeen; Max Logoskie, driver, aged sixteen; William Donahey, driver, aged fifteen; and Thomas Clifford, doorboy, aged fourteen. Eight of them were married, and they had nineteen children.

Colliery Accidents on the Surface.

Twenty-one serious but non-fatal, and six fatal accidents occurred in the Third district during 1885 on the surface around the collieries. The fatal ones happened as described in the following remarks:

ACCIDENT, No. 10.—George Stonyenke, a loader, was killed February 28, by being crushed between a railroad car and a post, at the No. 5 breaker, Nanticoke. The car was moving slowly, and on approaching the post, he attempted to jump on the car on its side, and was caught.

ACCIDENT, No. 22.—Thomas Hughes, an outside laborer, was fatally injured at the No. 5 breaker, Nanticoke, June 22, 1885. While attempting to

cross the track in front of a moving mine-car, his foot slipped, causing him to fall. The car ran upon him and injured him so that he died in about two hours after.

Accident, No 48.—George Cooper, a laborer, while looking down the No. 2 shaft, Nanticoke, October 7, 1885, the descending cage struck him on his head, killing him instantly.

Accident, No. 57.—Michael Stradinskey, a laborer, while running a loaded railroad car out from the breaker-chutes jumped off in front to go and turn a switch. He fell, and the car ran over him, killing him instantly. This occurred at the Newport breaker, Susquehanna Coal Company, November 9, 1885.

Accident, No. 60.—Jacob Schwab, a loader, at the Stanton breaker, Lehigh and Wilkes-Barre Coal Company, was riding on the front end of a loaded railroad car running out from the breaker, on November 30, 1885. He had an iron bar under his feet, which was projecting out some distance over the side. In passing another car, this caught and caused Schwab to fall on the rail, and the car ran over him. He died within half an hour after.

Accident, No. 63.—Charles Dwyer, a laborer, was instantly killed near the No. 5 breaker, Nanticoke, December 10, 1885. He was standing on the track unnoticed, when a loaded rock-car ran upon him with the result stated. Evidently he did not hear nor see the car approaching him.

A Shocking Accident at the Oak Wood Shaft, Lehigh Valley Coal Company.

On the morning of September 2, 1885, while the men were being lowered to work in this shaft, a shocking accident happened, which caused the death of John J. Martin, a miner; James Kearney, a laborer; Thomas Jenkins and John Peterson, miners. These men, with six others, were on the cage descending the shaft, when, upon reaching the bottom, a large piece of rock loosening from the side of the shaft, several hundred feet above, fell upon the cage, crushing through its roof upon them, killing the first three named instantly, and the other was injured so that he died in a few hours after.

This shaft is seven hundred and thirty feet deep, and the rock became loose on the west side, about midway down, and right below a small vein of coal. In July, the shaft had been very carefully examined, and all loose material found was pulled down or secured by timber. This rock was penetrated by an unseen slip, and a piece weighing about three hundred pounds, disintegrating from the face of this slip, did the fatal work upon these four unfortunate men, who were on the cage at that time.

TABLE No 1.—*A list of serious but non-fatal accidents in the Third district of the*

for the year ending

Number.	DATE.	Names of Persons Injured.	Age.	Wife.	Children.	Nationality.	Occupation.	Names of the Collieries.
1	Jan. 2	William T. Jones,	19	.	.	Welsh,	Driver,	Dodson,
2	6	Miles Fisher,	17	.	.	Irish,	Driver,	No. 2 Slope, Nanticoke,
3	10	Gomer Davies,	14	.	.	Welsh,	Helper,	No. 1 Shaft, Nanticoke,
4	12	John Reel,	.	.	.	.	Driver,	West End,
5	12	James Brinn,	49	1	2	Welsh,	Miner,	Conyngham,
6	20	Daniel Kilroy,	54	.	.	Irish,	Miner,	Franklin,
7	Feb. 2	Frank Black,	16	.	.	Irish,	Driver,	Diamond,
8	6	David Potts,	40	1	2	Welsh,	Miner,	Hollenback,
9	6	Morgan Whalen,	60	.	.	Irish,	Laborer,	No. 1 Breaker, Nanticoke,
10	6	Michael Terry,	38	.	.	Irish,	Miner,	Franklin,
11	12	William Higgins,	27	.	.	English,	Sinker,	Newport,
12	16	George McNeil,	33	1	1	Hungarian,	Miner,	Alden,
13	17	Charles Rule,	18	.	.	English,	Laborer,	No. 4 Slope, Nanticoke,
14	17	John Osmonskey,	23	1	.	Polish,	Miner,	No. 1 Shaft, Nanticoke,
15	17	Henry Dunstan,	37	1	1	English,	Miner,	Hillman Vein,
16	17	Henry Gribble,	38	1	4	English,	Miner,	do.
17	17	Samuel Jenkins,	32	1	3	English,	Laborer,	do.
18	17	Thomas S. Jones,	25	1	4	Welsh,	Miner,	do.
19	17	Thomas D. Jones,	34	1	3	Welsh,	Miner,	do.
20	17	Daniel Richards,	38	1	7	Welsh,	Fire-boss,	do.
21	17	William Reed,	44	1	3	English,	Miner,	do.
22	17	William Enstice,	38	1	1	English,	Laborer,	do.
23	17	John J. O'Donnell,	35	1	4	Irish,	Miner,	do.
24	17	James Hocking,	23	1	2	English,	Laborer,	do.
25	20	Charles Howells,	36	1	3	English,	Miner,	No. 3 Shaft, Kingston,
26	24	Ang. Gonscoup,	14	.	.	Polish,	Door boy,	No. 2 Shaft, Nanticoke,
27	Mar. 5	Michael Ruddy,	14	.	.	Irish,	Helper,	Diamond,
28	6	Adam Rockenshey,	25	.	.	Polish,	Laborer,	No. 2 Shaft, Nanticoke,
29	9	Frank Lenahan,	55	.	.	Irish,	Laborer,	No. 9, Sugar Notch,
30	11	Hiram Waters,	32	1	2	American,	Miner,	Dodson,
31	13	John Mayle,	19	.	.	English,	Laborer,	Hartford,
32	13	Moses W. Thomas,	.	.	.	.	Door boy,	No. 1 Shaft, Nanticoke,
33	20	William Perkins,	18	.	.	English,	Driver,	Nottingham,
34	20	Laurence Kenedy,	.	1	.	Irish,	Miner,	No. 1 Shaft, Nanticoke,
35	25	Charles Schecterly,	20	.	.	American,	Brakeman,	No. 4 Slope, Nanticoke,
36	25	Evan Jones,	25	1	1	American,	Miner,	Avondale,
37	30	William Willie,	.	.	.	.	Miner,	No. 2 Slope, Nanticoke,
38	30	James Williams,	39	.	.	English,	Miner,	No. 4 Slope, Nanticoke,
39	30	George Williams,	33	.	.	English,	Laborer,	do. do.
40	April 1	John Lewis,	19	.	.	Welsh,	Runner,	No. 1, Red Ash,
41	4	Abraham W. Jones,	29	1	2	Welsh,	Miner,	Parrish Coal Company,
42	6	Michael Verrup,	28	1	.	Hungarian,	Laborer,	No. 1 Breaker, Kingston,
43	7	Albert Blonsey,	18	.	.	English,	Runner,	No. 1 Shaft, Nanticoke,
44	10	Hugh Bennick,	35	1	.	Irish,	Laborer,	Reynolds,
45	11	Mason Alexander,	16	.	.	American,	Driver,	Alden,
46	13	Jenki- Wilde,	23	.	.	Welsh,	Laborer,	Grand Tunnel,
47	14	William Chalker,	.	.	.	.	Laborer,	No. 1 Shaft, Nanticoke,
48	14	Owen Gillespie,	27	.	.	Irish,	Miner,	Empire,
49	17	Isaac Askew,	54	1	7	American,	Chute boss,	Nottingham Breaker,
50	18	James Richard,	19	.	.	Welsh,	Runner,	No. 2 Shaft, Nanticoke,
51	18	Den. McConglogen,	22	.	.	Irish,	Footman,	Franklin,

Anthracite coal fields of Pennsylvania, with remarks on the cause of each accident, December 31, 1885.

Remarks on Extent of Injury and Cause of Accidents.	Explosion of CH4 gas.	Falling of roof and coal.	Falling down shafts.	Crushed by mine cars.	Explosion of powder and blast.	Miscellaneous.	On surface.	Totals.	Number.
Several ribs fractured by falling under cars,				1				1	1
Severely hurt on head and chest by a kick from a mule,						1		1	2
Thigh broken; caught between two cars,				1				1	3
Thigh dislocated and fractured by being jammed between cars,				1				1	4
Back quite badly hurt by a piece of coal falling from rib,		1						1	5
Leg broken near his ankle by a prop falling when rolling it off car,						1		1	6
Arm broken by faling off a mule's back,							1	1	7
Back and ankle hurt by coal flying from a blast,					1			1	8
Foot crushed under railroad cars; had to be amputated,							1	1	9
Left leg broken by coal rushing upon him,		1						1	10
Struck on head by a stone which fell from side of shaft,						1		1	11
Severe scalp wound caused by a fall of coal,		1						1	12
Face and hands burned by an explosion of gas,	1							1	13
Face, hands, and upper part of body severely burned by an explosion of gas,	1							1	14
Face and hands burned, (These persons were all injured at the same time in the Hillman seam, east of the tunnel. About 10 o'clock, A. M., one of the journals of the ventilating fan heated, causing the fan to retard its speed and finally stop for about two minutes. As soon as the fan was noticed to retard speed, Wm. Eustice was sent to call the men out, but the gas accumulated rapidly, and ignited from some one's lamp, causing a terrific explosion just as he was going in the gangway. James Solomon was killed and John D. Jones was fatally burned.)	1							1	15
Face and hands burned,	1							1	16
Face and hands burned,	1							1	17
Face and hands severely burned,	1							1	18
Face and hands severely burned,	1							1	19
Thigh and arm broken,	1							1	20
Slightly burned and bruised,	1							1	21
Severe scalp wound,	1							1	22
Compound fracture of elbow,	1							1	23
Face and hands slightly burned,	1							1	24
Leg and shoulder severely bruised by a fall of rock,		1						1	25
Leg broken by falling upon a T rail while playing,						1		1	26
Leg broken by running down the inclined plane and falling,						1		1	27
Severely cut on leg; done by a piece of slate falling on it,		1						1	28
Ankle bruised and finger severely cut by a fall of rock,		1						1	29
Seriously injured by a premature blast,					1			1	30
Slightly hurt by coal rolling upon him,						1		1	31
Fell asleep on the track; car ran over his hand and crushed it so that it had to be amputated,					1			1	32
Broke his arm by wrestling with another boy,						1		1	33
Side and head severely injured by a premature blast fired by ramming a tight cartridge into a hole,					1			1	34
Severely scalded about lower limbs; the blowing-off cock on locomotive broke, letting the steam blow upon him in large volume,							1	1	35
Foot crushed and slight cut on head by fall of coal,		1						1	36
Ankle dislocated by being struck with the rope,						1		1	37
Slightly burned on faces and hands by an explosion of gas, caused by disobeying orders of the mine-boss regarding naked lights,	1							1	38
	1							1	39
Thigh bruised and two fingers cut by a car running over him,				1				1	40
Right leg broken by coal flying from a blast,					1			1	41
Leg broken by a stone sliding upon him while digging wall foundation,							1	1	42
Toe crushed and had to be amputated; car ran over it,				1				1	43
Face and hands slightly burned by an explosion of gas,	1							1	44
Leg broken and collar-bone fractured by being caught between cars,				1				1	45
Flesh wounds on back, arm, and leg, caused by a fall of coal,		1						1	46
Three ribs fractured, leg bruised, and cut on arm by a fall of coal,		1						1	47
Painfully injured by a blast, which was fired while he was withdrawing tamping,					1			1	48
Eye seriously hurt by a piece of steel flying into it,							1	1	49
Leg broken by being squeezed between two cars,				1				1	50
Left arm broken by a runaway car; coupling broke on slope,				1				1	51

TABLE No. I.—

Number.	Date.	Names of Persons Injured.	Age.	Wife.	Children	Nationality.	Occupation.	Names of the Collieries.
52	April 22	William Keiler, . .	16	. .	. .	American,	Driver, ...	No. 1 Shaft, Nanticoke, . .
53	23	Hugh McGwartz, .	20	. .	. .	Irish, . .	Driver, ...	Stanton, ...
54	May 1	Frank Schappert, .	25	. .	. .	Polish, . .	Laborer, . . .	No. 1 Shaft, Nanticoke, . .
55	1	James Kelbey, . . .	53	1	3	Irish, . .	Miner, ...	Gaylord, ...
56	4	Fred. Boker, . . .	26	. .	. .	Polish, . .	Laborer, . . .	No. 2 Shaft, Nanticoke, . .
57	4	Peter Gorham, . .	50	1	. .	Irish, . .	Miner, ...	Hartford, ...
58	4	David Smith, . . .	54	. .	. .	Welsh, . .	Miner, ...	Stanton, ...
59	5	Charles Drew, . . .	. .	. .	. .	. . . . .	Miner, ...	No. 4 Slope, Nanticoke, . .
60	5	Clarence Cope, . .	28	1	. .	American,	Carpenter, . .	Newport, ...
61	12	John Scott, ...	45	1	3	Irish, . .	Pump-man, .	Franklin, ...
62	16	Thos. O'Flaherty,	31	1	4	Irish, . .	Laborer, . . .	No. 5, Plymouth, ...
63	19	John C. Thomas, .	27	1	1	Welsh, . .	Runner, . . .	Stanton, ...
64	19	Henry Gwinn, . . .	15	. .	. .	American,	Driver, ...	No. 1 Slope, Nanticoke, . .
65	23	Mike Como, ...	20	. .	. .	Hungarian,	Driver, ...	No. 2 Breaker, Kingston, .
66	23	James Boyd, ...	. .	1	. .	Irish, . .	Miner, ...	No. 2 Shaft, Nanticoke, . .
67	25	Thos. Llewellyn, .	17	. .	. .	Welsh, . .	Driver, ...	No. 3, Plymouth, ...
68	25	Frank Shunofskey,	. .	1	. .	Polish, . .	Laborer, . . .	No. 2 Shaft, Nanticoke, . .
69	27	George C. Smith, .	19	. .	. .	American,	Laborer, . .	No. 1 Shaft, Nanticoke, . .
70	27	Charles Barnett, . .	15	. .	. .	American,	Slate-picker, .	Salem Breaker, ...
71	June 2	Frank Black, . . .	16	. .	. .	Irish, . .	Driver, ...	Diamond, ...
72	10	W. N. Roberts, . .	28	. .	. .	Welsh, . .	Laborer, . . .	Dodson, ...
73	10	Fred. Loskoskey, .	22	. .	. .	German, .	Miner, ...	No. 4 Slope, Nanticoke, . .
74	11	Pat. Gowin, ...	45	1	5	Irish, . .	Miner, ...	Stanton, ...
75	13	Gustav Gannel, . .	27	1	2	German, .	Laborer, . . .	No. 1 Shaft, Nanticoke, . .
76	13	Thomas Drury, . .	35	1	4	Irish, . .	Miner, ...	Hillman Vein, ...
77	17	Thomas Davies, . .	14	. .	. .	Welsh, . .	Driver, ...	No. 2 Slope, Nanticoke, . .
78	17	John Allen, ...	37	1	4	English, .	Miner, ...	Lance, No. 11, ...
79	18	Ed. Delaney, . . .	20	. .	. .	Irish, . .	Runner, . . .	Avondale, ...
80	20	John B. Cotterale,	35	1	. .	Irish, . .	Miner, ...	Hartford, ...
81	20	Peter P. Jones, . .	35	1	. .	Welsh, . .	Miner, ...	Empire, ...
82	23	John Oshinskey, . .	27	1	. .	Polish, . .	. . . . .	No. 1 Shaft, Nanticoke, . .
83	23	Barney Lyons, . . .	29	. .	. .	Irish, . .	Laborer, . . .	Diamond, ...
84	July 1	Wm. McNilus, . . .	42	1	4	Irish, . .	Miner, ...	Stanton, ...
85	1	Robert Moyer, . . .	40	1	3	American,	Miner, ...	West End Tunnel, ...
86	8	Joseph Ross, ...	35	. .	. .	Italian, .	Laborer, . . .	Nottingham, ...
87	9	Moses Lewton, . .	15	. .	. .	English, .	Door boy, . .	No 2 Shaft, Kingston, . . .
88	20	John Toole, ...	20	. .	. .	Irish, . .	Driver, ...	Stanton, ...
89	21	Peter Connolly, . .	43	. .	. .	Irish, . .	Miner, ...	Avondale, ...
90	21	Powell Bowski, . .	45	1	5	Polish, . .	Miner, ...	Hartford, ...
91	22	John Hern, ...	30	1	3	English, .	Laborer, . . .	No. 4 Slope, Nanticoke, .
92	22	Hopkin Williams, .	32	1	. .	Welsh, . .	Machinist, . .	
93	27	Hugh Parker, . . .	. .	. .	. .	. . . . .	Miner, ...	Chauncey, ...
94	29	William Coombs, .	35	1	. .	. . . . .	Laborer, . . .	No. 1 Shaft, Nanticoke, . .
95	29	John McAndrews, .	45	. .	. .	Irish, . .	Miner, ...	Hollenback, ...
96	Aug. 3	Lewis Merrifield, .	43	1	4	English, .	Miner, ...	Reynolds, ...
97	4	Jacob Ogan, ...	21	. .	. .	American,	Laborer, . . .	Wanamie, ...
98	5	Ed. McGinness, . .	50	1	7	Irish, . .	Miner, ...	Hollenback, ...
99	12	Pat. McGowan, . .	50	1	6	Irish, . .	Miner, ...	No. 9, Sugar Notch, ...
100	12	Barney Toole, . . .	50	1	3	Irish, . .	Engineer, . .	Hillman Vein, ...
101	15	Thos. H. Hughes, .	53	1	. .	Welsh, . .	Miner, ...	No. 4 Slope, Nanticoke, . .
102	17	Thomas Tracey, . .	26	. .	. .	Irish, . .	Miner, ...	No. 9, Sugar Notch, . . .
103	17	Rodger Edmunds, .	32	1	1	Welsh, . .	Laborer, . . .	
104	21	Frank Serinski, . .	34	1	. .	Polish, . .	Laborer, . . .	No. 2 Slope, Nanticoke, . .
105	22	John Trevor, . . .	21	. .	. .	Welsh, . .	Miner, ...	No. 1 Shaft, Nanticoke, . .
106	24	John B. Thomas, .	30	1	. .	Welsh, . .	Miner, ...	Stanton, ...
107	25	Anthony Oburst, .	15	. .	. .	German, .	Door boy, . .	Hollenback, ...
108	25	William Brown, . .	26	. .	. .	Irish, . .	Miner, ...	No. 1 Shaft, Nanticoke, . .
109	25	Neil Conway, . . .	29	1	3	Irish, . .	Miner, ...	No. 9, Sugar Notch, ...
110	28	William Fitzer, . .	19	. .	. .	American,	Miner, ...	Dodson, ...
111	28	James Giles, ...	38	1	4	English, .	Miner, ...	Conyngham, ...

Continue l.

Remarks on Extent of Injury and Cause of Accidents.	Explosion of C H4 gas.	Falling of roof and coal.	Falling down shaft.	Crushed by mine cars.	Explosion of powder and blasts.	Miscellaneous.	On surface.	Totals.	Number.
Thigh broken and hip sprained; his foot caught in a frog and car ran upon him,				1				1	52
Severely kicked by a mule; recovered all right,						1		1	53
Face and hands slightly burned by an explosion of gas,	1							1	54
Thigh broken by coal flying from a blast; he cut the match too short,					1			1	55
Leg broken; mule pulled a car upon him while trying to place it on the track,				1				1	56
Collar bone fractured and severe wound on chest by a fall of coal,		1						1	57
Leg crushed between cars; amputated after at the hospital,				1				1	58
Face and hands burned by an explosion of gas,	1							1	59
Leg broken by a tree falling upon him,							1	1	60
Left leg broken; a car ran against a piece of timber, causing it to strike his leg and breaking it,						1		1	61
Leg broken by coal sliding upon it from top of bottom bench,		1						1	62
Painfully bruised around body; caught between car and side,				1				1	63
Head badly cut and shoulder-blade fractured by falling under a car,				1				1	64
Leg crushed between two culm cars,							1	1	65
Face, back, and hands burned by an explosion of gas,	1							1	66
Leg broken; car jumped track and squeezed him against another car,				1				1	67
Face and hands burned by an explosion of gas,	1							1	68
Three fingers cut off by a circular saw,							1	1	69
Right arm shockingly lacerated and bone fractured by being caught in the rolls,							1	1	70
Hip dislocated by falling from a mule's back,							1	1	71
Leg broken by a fall of rock,		1						1	72
Leg broken at ankle by a fall of roof; Alex. Bonage was slightly hurt the same time,		1						1	73
Hip fractured and body bruised by a fall of coal,		1						1	74
Skull fractured by a blast bursting through pillar; he recovered all right,					1			1	75
Face and hands burned by an explosion of gas,	1							1	76
Leg broken; stretcher caught him and he was thrown under a car,					1			1	77
Arm broken at wrist by a piece of rock falling on it,		1						1	78
Leg crushed below knee by cars running over him on the plane,							1	1	79
Three fingers crushed by coal in the chute,						1		1	80
Face and hands burned by an explosion of gas,	1							1	81
Face and hands severely burned by an explosion of gas,	1							1	82
Hips and urethra badly injured by a fall of rock,		1						1	83
Severe flesh wounds on head, back, and legs by a premature blast,					1			1	84
Leg broken by a fall of slate,		1						1	85
Severely injured by falling into the shaft after the cage,			1					1	86
Leg broken; jammed between a car and door,				1				1	87
Hips badly injured by being squeezed between car and rib,				1				1	88
Several ribs fractured by a fall of rock,		1						1	89
Arms and back painfully bruised and severely cut on forehead by a premature blast, he having cut the match too short,					1			1	90
Severely cut and bruised by runaway cars on slope; the hitching plate broke, leaving a trip of cars run down the slope,				1				1	91
				1				1	92
Right arm broken by coal flying from a blast,					1			1	93
Left leg broken near ankle by a car running upon him,				1				1	94
Collar bone fractured and severely wounded on head by a premature blast,					1			1	95
Body painfully bruised by a fall of rock,		1						1	96
Painfully hurt; caught between car and prop,				1				1	97
Severely injured by a fall of coal. His laborer, Thos. Hennerty, was killed the same time,		1						1	98
Severely injured on body and head by a fall of coal,		1						1	99
Severely scalded by a boiler explosion,							1	1	100
Face and hands burned by an explosion of gas,	1							1	101
Both were burned by an explosion of gas while working together,	1							1	102
	1							1	103
Seriously cut near his eye by falling upon a piece of coal,						1		1	104
Two ribs fractured by a runaway car,				1				1	105
Severely injured by falling from a wheeling platform,						1		1	106
Hips painfully injured by being jammed between cars,				1				1	107
Leg and body bruised by a blast,					1			1	108
Face, hands, and neck burned by an explosion of gas,	1							1	109
Severe scalp wound by a premature blast,					1			1	110
Two ribs fractured; back bruised and nose cut by fall of coal,		1						1	111

TABLE No. I.—

Number.	Date.	Names of Persons Injured.	Age.	Wife.	Children.	Nationality.	Occupation.	Names of the Collieries.
112	Aug. 31	Lewis Parry, ...	25	1	. .	Welsh, . .	Miner, . . .	
113	31	Charles Granville, .	21	. .	. .	English, .	Laborer, . .	No. 4 Slope, Nanticoke, . .
114	31	Richard Rule, . . .	30	. .	. .	English, .	Miner, . . .	
115	31	William James, . .	28	. .	. .	Welsh, . .	Miner, . . .	
116	Sept. 5	John O'Donnell, . .	20	. .	. .	Irish, . . .	Laborer, . . .	Dodson, ...
117	10	John Furguskey, .	22	. .	. .	Polish, . .	Laborer, . . .	No. 1 Shaft, Nanticoke, . .
118	10	James Leonard, . .	30	1	4	Irish, . . .	Miner, ...	Conyngham, ...
119	11	Peter Summers, . .	35	1	3	. . . . .	. . . . .	Dodson, ...
120	14	Frank Gomonski, .	17	. .	. .	Polish, . .	Brakeman, . .	No. 4 Tunnel, Nanticoke, .
121	15	Pat. Brennen, . . .	25	. .	. .	Irish, . . .	Laborer, . . .	No. 4 Slope, Nanticoke, . .
122	16	Pat. Conyngham, .	21	. .	. .	American,	Laborer, . . .	Baltimore Slope, ...
123	17	Michael Frank, . .	21	. .	. .	Hungarian,	Laborer, . . .	Gaylord, ...
124	Oct. 5	John Samuels, . . .	17	. .	. .	Welsh, . .	Driver, ...	No. 2, Red Ash, ...
125	6	Condy O'Donnell, .	31	. .	.	Irish, . . .	Miner, ...	Conyngham, ...
126	8	David J. Jones, . .	29	1	1	Welsh, . .	Track-layer, .	Hillman Vein, ...
127	10	O. E. Rider, ...	. .	. .	. .	. . . . .	Miner, ...	Salem, ...
128	13	Anthony Lavan, . .	15	. .	. .	Irish, . . .	Driver, ...	Diamond, ...
129	15	George Worwick, .	25	. .	. .	Hungarian,	Laborer, . . .	No. 2 Slope, Nanticoke, . .
130	15	James Adams, . . .	15	. .	. .	Welsh, . .	Door-boy, . .	No. 2 Slope, Nanticoke, . .
131	20	Joseph Trenoskey,	25	. .	. .	Polish, . .	Laborer, . . .	No. 1 Shaft, Nanticoke, . .
132	21	Henry Powell, . . .	26	1	. .	English, .	Miner, . . .	
133	21	John Makoskey, . .	23	. .	. .	Polish, . .	Laborer, . .	No. 1 Shaft, Nanticoke, . .
134	21	Matthew Marshon,	23	. .	. .	Polish, . .	Laborer, . .	
135	21	Joseph Thomas, . .	25	. .	. .	Welsh, . .	Machinist, .	
136	21	David Grimes, . . .	30	. .	. .	Irish, . . .	Machinist, .	
137	21	John Woods, ...	27	1	1	American,	Machinist, .	
138	21	Sandy Love, ...	28	. .	. .	American,	Laborer, . .	
139	21	John Lovitzkey, . .	31	. .	2	Polish, . .	Laborer, . .	No. 2, Plymouth, ...
140	21	John Zeliuskey, . .	25	. .	. .	Polish, . .	Laborer, . .	
141	21	Edward F. Jones, .	45	1	4	Welsh, . .	Laborer, . .	
142	21	Thos. McDermott, .	30	1	5	Irish, . . .	Laborer, . .	
143	21	Thomas Howard, .	35	1	3	Irish, . . .	Miner, . . .	
144	21	John Cobley, ...	52	1	4	English, .	Miner, . . .	
145	22	Patrick McGuire, .	61	1	. .	Irish, . . .	Miner, ...	No. 1 Shaft, Nanticoke, . .
146	22	Gwilym Evans, . .	13	. .	. .	Welsh, . .	Slate-picker, .	No. 2 Breaker, Kingston, .
147	26	Condy Fisher, . . .	50	. .	. .	Irish, . . .	Miner, ...	Warrior Run, ...
148	Nov. 3	John D. Beddow, .	38	1	. .	Welsh, . .	Miner, . . .	
149	3	Frank Knoskey, . .	25	. .	. .	Polish, . .	Laborer, . .	No. 1 Shaft, Nanticoke, . .
150	3	John Kriofoskey, .	19	. .	. .	Polish, . .	Laborer, . .	
151	3	Thomas Jones, . . .	16	. .	. .	Welsh, . .	Driver, ...	No. 5, Plymouth, ...
152	4	Conrad German, .	16	. .	. .	American,	Driver, ...	No. 2 Shaft, Nanticoke, . .
153	4	Christian Dietz, . .	37	1	3	German, .	Miner, ...	No. 4, Plymouth, ...
154	6	John Gobber, . . .	30	1	1	Hungarian,	Laborer, . . .	No. 3, Kingston, ...
155	7	James Brennen, . .	30	1	4	Irish, . . .	Miner, ...	No. 9, Sugar Notch, ...
156	12	Patrick Scott, . . .	24	. .	. .	Irish, . . .	Laborer, . . .	Lance, No. 11, ...
157	12	Frank Froski, . . .	30	. .	. .	Polish, . .	Miner, ...	No. 9, Sugar Notch, ...
158	13	Anthony Brennen,	37	1	2	Polish, . .	Miner, ...	No. 2 Shaft, Nanticoke, . .
159	19	James Reede, . . .	34	. .	. .	Scotch, . .	Laborer, . . .	Grand Tunnel, ...
160	27	Wm. J. Evans, . .	15	. .	. .	American,	Driver, ...	Conyngham, ...
161	28	Simon Savage, . . .	28	. .	. .	Polish, . .	Miner, ...	No. 1 Slope, Nanticoke, . .
162	30	Cornelius Boyle, . .	24	. .	. .	Irish, . . .	Stable-boss, .	Hillman Vein, ...
163	Dec. 2	Thomas Hayes, . .	17	. .	. .	American,	Loader, . . .	Hollenback, ...
164	3	William Ranson, . .	39	1	4	American,	Miner, ...	No. 4 Slope, Nanticoke, . .
165	4	Robert John, . . .	34	1	4	Welsh, . .	Miner, ...	Lance, No. 11, ...
166	4	Sam'l R. Van Horn,	17	. .	. .	American,	Runner, . . .	Newport, ...
167	10	Humphrey Hughes,	20	. .	. .	Welsh, . .	Miner, ...	Gaylord, ...
168	12	John Monaghan, . .	32	1	1	American,	Laborer, . .	Frankford, ...
169	15	James Lewis, . . .	25	. .	. .	Welsh, . .	Laborer, . . .	No. 2 Shaft, Nanticoke, . .
170	16	Thos. McKenna, . .	. .	. .	. .	. . . . .	Miner, ...	West End, ...
171	18	Michael Dumask, .	26	1	2	Hungarian,	Laborer, . . .	No. 5, Plymouth, ...
172	19	Thos. McMannus, .	40	. .	. .	Irish, . . .	Miner, ...	Franklin, ...
173	21	John H. Williams, .	13	. .	. .	Welsh, . .	Slate-picker, .	No. 2, Red Ash, ...
174	23	Patrick McDade, .	40	1	3	Irish, . . .	Miner, . . .	Diamond, ...
175	28	Peter Gallagher, .	30	. .	. .	Irish, . . .	Miner, ...	Diamond, ...
176	28	Thomas Pritchard,	26	1	. .	Welsh, . .	Miner, ...	No. 1, Red Ash, ...
177	29	Charles Roth, . . .	17	. .	. .	American,	Laborer, . . .	Diamond, ...
178	31	Robert Rubery, . .	14	. .	. .	American,	Driver, ...	No. 2 Breaker, Nanticoke,

One hundred and seven accidents were reported as only very slight injuries, which are not included in eighty-five (285.)

Continued.

Remarks on Extent of Injury and Cause of Accidents.	Explosion of C H4 gas.	Falling of roof and coal.	Falling down shaft.	Crushed by mine cars.	Explosion of powder and blasts.	Miscellaneous.	On surface.	Totals.	Number.
Parry and Granville were severely burned on their hands and faces, and the other two slightly burned on their faces and hands; gas accumulated at an unexpected point, and when going to work it exploded, burning them as stated,	1	. .	. .	. .	. .	. .	. .	1	112
	1	. .	. .	. .	. .	. .	. .	1	113
	1	. .	. .	. .	. .	. .	. .	1	114
	1	. .	. .	. .	. .	. .	. .	1	115
Compound fracture of leg by a premature blast,	. .	. .	. .	. .	1	. .	. .	1	116
Leg broken by a fall of roof,	. .	1	. .	. .	. .	. .	. .	1	117
Mining-needle ran through his thigh; fell while running with it,	. .	. .	. .	. .	. .	1	. .	1	118
Left foot fractured by a fall of coal,	. .	1	. .	. .	. .	. .	. .	1	119
Right leg broken; caught between two cars,	. .	. .	. .	. .	. .	. .	1	1	120
Left foot cut off, and right one bruised by fall of rock,	. .	1	. .	. .	. .	. .	. .	1	121
Leg broken by a fall of coal,	. .	1	. .	. .	. .	. .	. .	1	122
Arm broken by a fall of coal; amputated,	. .	1	. .	. .	. .	. .	. .	1	123
Leg crushed by falling under a car; amputated,	. .	. .	. .	1	. .	. .	. .	1	124
Thigh and arm broken by a fall of coal,	. .	1	. .	. .	. .	. .	. .	1	125
Two ribs fractured by being squeezed between car and door-post,	. .	. .	. .	1	. .	. .	. .	1	126
Side painfully bruised by a premature blast,	. .	. .	. .	. .	1	. .	. .	1	127
Spine injured, and two ribs broken by falling under a culm car,	. .	. .	. .	. .	. .	. .	1	1	128
Face and hands slightly burned by an explosion of powder,	. .	. .	. .	. .	1	. .	. .	1	129
Skull slightly fractured by being swung from a car against the rib,	. .	. .	. .	. .	. .	1	. .	1	130
Leg broken by a fall of slate,	. .	1	. .	. .	. .	. .	. .	1	131
Faces and hands burned by an explosion of gas; they brushed the gas upon their naked lights and exploded it,	1	. .	. .	. .	. .	. .	. .	1	132
	1	. .	. .	. .	. .	. .	. .	1	133
	1	. .	. .	. .	. .	. .	. .	1	134
All these were severely burned by an explosion of gas, in the No. 2 shaft, Plymouth. There were six others fatally burned the same time. For further particulars of the accident, see another part of this report,	1	. .	. .	. .	. .	. .	. .	1	135
	1	. .	. .	. .	. .	. .	. .	1	136
	1	. .	. .	. .	. .	. .	. .	1	137
	1	. .	. .	. .	. .	. .	. .	1	138
	1	. .	. .	. .	. .	. .	. .	1	139
	1	. .	. .	. .	. .	. .	. .	1	140
	1	. .	. .	. .	. .	. .	. .	1	141
	1	. .	. .	. .	. .	. .	. .	1	142
	1	. .	. .	. .	. .	. .	. .	1	143
	1	. .	. .	. .	. .	. .	. .	1	144
Arm broken and side bruised by coal flying from a blast,	. .	. .	. .	. .	1	. .	. .	1	145
Flesh lacerated on arm; caught in a screen,	. .	. .	. .	. .	. .	. .	1	1	146
Leg broken by a fall of coal,	. .	1	. .	. .	. .	. .	. .	1	147
These three were painfully burned by an explosion of gas; they were timbering at the face of gangway; a rush of coal brought the gas down on their lamps from a hole above the timber,	1	. .	. .	. .	. .	. .	. .	1	148
	1	. .	. .	. .	. .	. .	. .	1	149
	1	. .	. .	. .	. .	. .	. .	1	150
Arm broken; falling while unhitching his mule,	. .	. .	. .	. .	. .	1	. .	1	151
Arm broken by being kicked by a mule,	. .	. .	. .	. .	. .	1	. .	1	152
Three ribs fractured and nose bruised; squeezed between car and rib,	. .	. .	. .	1	. .	. .	. .	1	153
Painfully hurt by a fall of rock,	. .	1	. .	. .	. .	. .	. .	1	154
Leg broken by a fall of coal,	. .	1	. .	. .	. .	. .	. .	1	155
Ankle dislocated by coal falling on it,	. .	1	. .	. .	. .	. .	. .	1	156
Face and hands burned by an explosion of gas,	1	. .	. .	. .	. .	. .	. .	1	157
Arm broken and slightly hurt about hips by a fall of rock,	. .	1	. .	. .	. .	. .	. .	1	158
Face slightly, hands and arms severely, burned by explosion of gas,	1	. .	. .	. .	. .	. .	. .	1	159
Elbow fractured, back and side slightly bruised by explosion of gas,	1	. .	. .	. .	. .	. .	. .	1	160
Leg broken; caught between car and rib,	. .	. .	. .	1	. .	. .	. .	1	161
Big toe fractured by being caught under the cage,	. .	. .	. .	. .	. .	1	. .	1	162
Painfully injured by being jammed between cars,	. .	. .	. .	. .	. .	. .	1	1	163
Face and hands severely burned by an explosion of gas,	1	. .	. .	. .	. .	. .	. .	1	164
Seriously injured by a premature blast,	. .	. .	. .	. .	1	. .	. .	1	165
Leg severely crushed between two cars,	. .	. .	. .	. .	. .	. .	1	1	166
Face and hands slightly burned by an explosion of gas,	1	. .	. .	. .	. .	. .	. .	1	167
Left arm broken; caught between railroad cars,	. .	. .	. .	. .	. .	. .	1	1	168
Arm broken; fall of slate caused him to fall on the teeth of a rake,	. .	1	. .	. .	. .	. .	. .	1	169
Leg broken by a piece of timber falling on it,	. .	. .	. .	. .	. .	1	. .	1	170
Severely cut on back by a fall of coal,	. .	1	. .	. .	. .	. .	. .	1	171
Face and hands burned by an explosion of gas,	1	. .	. .	. .	. .	. .	. .	1	172
Hip dislocated and hand bruised; caught between car and post,	. .	. .	. .	. .	. .	. .	1	1	173
Two legs broken by a fall of roof,	. .	1	. .	. .	. .	. .	. .	1	174
Leg broken and back hurt by fall of coal,	. .	1	. .	. .	. .	. .	. .	1	175
Eye destroyed by a piece of coal flying into it from the drill,	. .	. .	. .	. .	. .	1	. .	1	176
Arm broken and flesh lacerated by railroad car running upon it,	. .	. .	. .	. .	. .	. .	1	1	177
Leg broken; struck by the rope at foot of plane,	. .	. .	. .	. .	. .	. .	1	1	178
	52	38	1	26	20	20	21	178	

the above list; adding which increases the total number of non-fatal accidents to two hundred and

TABLE No. I.—*A list of serious but non-fatal accidents in the Second District of*

dent, for the year end-

Number.	DATE.	Names of Persons Injured.	Age.	Wife.	Children.	Nationality.	Occupation.	Names of the Collieries.
1	Jan. 3	William Amos, . . .	50	1	. .	Welsh, . .	Fire boss, . .	Midvale Slope, ...
2	3	Lewis Thomas, . .	. .	. .	. .	Welsh, . .	Miner, ...	
3	6	John Edwards, . .	37	1	1	Welsh, . .	Miner, ...	Wyoming, ...
4	9	Stephen Treverton,	22	. .	. .	English, .	Laborer, . . .	Exeter, ...
5	17	Thomas Price, . . .	16	. .	. .	American,	Oiler, ...	East Boston, ...
6	Feb. 6	John Gallagher, . .	13	. .	. .	Irish, . .	Door boy, . .	Pine Ridge, ...
7	6	Frank Harlick, . .	23	. .	. .	Turkish, .	Laborer, . . .	East Boston, ...
8	16	H. C. Johnson, . .	33	1	. .	American,	Mine boss, . .	Forty Fort, ...
9	Mar. 3	James Cochlin, . .	27	1	1	Irish, . .	Miner, ...	Harry E., ...
10	3	Samuel Marsh, . .	18	. .	. .	English, .	Laborer, . . .	do. . . . .
11	7	John Heffron, . . .	45	1	7	Irish, . .	Miner, ...	Schooley, ...
12	7	James Brennen, . .	23	. .	. .	Irish, . .	Miner, ...	do. . . . .
13	10	Thomas Hughes, .	. .	. .	. .	Irish, . .	Laborer, . . .	Henry, ...
14	10	Patrick Haley, . . .	. .	. .	. .	Irish, . .	Miner, ...	do. . . . .
15	12	James Smith, . . .	50	1	7	American,	Laborer, . . .	Wyoming, ...
16	18	Andrew Golas, . . .	22	. .	. .	Polish, . .	Laborer, . . .	do. . . . .
17	21	Thomas Cummings,	42	1	7	English, .	Miner, ...	Bennett, ...
18	21	Owen R. Jones, . .	45	1	7	Welsh, . .	Footman, . .	Wyoming, ...
19	April 3	Joseph Hayward, .	42	1	2	English, .	Sinker, . . .	Mill Creek Shaft, ...
20	3	Samuel Morris, . .	43	1	5	English, .	Sinker, . . .	do. do. . . . .
21	23	William Skidmore,	32	1	. .	English, .	Fire boss, . .	Bennett, ...
22	23	Andrew Barnett, . .	29	. .	. .	American,	Assistant, . . .	
23	25	James Bosker, . . .	20	. .	. .	American,	Footman, . .	Pine Ridge, ...
24	28	Henry Banta, . . .	35	1	3	American,	Miner, ...	Forty Fort, ...
25	May 4	Michael Jessup, . .	23	1	. .	Hungarian,	Laborer, . . .	Wyoming, ...
26	4	Patrick Brennen, .	26	. .	. .	Irish, . .	Laborer, . . .	do. . . . .
27	12	George Pastin, . . .	38	1	3	Hungarian,	Laborer, . . .	Prospect, ...
28	19	Joseph Dailey, . . .	10	. .	. .	Irish, . .	Slate-picker, .	East Boston, ...
29	27	Benjamin Sherer, .	17	. .	. .	American,	Driver, ...	Mineral Springs, ...
30	27	John Conovan, . . .	17	. .	. .	Irish, . .	Driver, ...	Laurel Run, ...
31	30	E. D. Denniston, .	60	1	. .	American,	Outside boss, .	Harry E., ...
32	June 15	William Porter, . .	56	1	6	English, .	Miner, ...	East Boston, ...
33	15	Thomas Harris, . .	47	1	6	Welsh, . .	Miner, ...	Pine Ridge, ...
34	17	James Laggin, . . .	29	1	. .	Irish, . .	Miner, ...	Wyoming, ...
35	17	John Gray, ...	35	. .	. .	Irish, . .	Laborer, . . .	
36	July 10	Evan Thomas, . . .	28	1	1	Welsh, . .	Miner, ...	Mineral Spring, ...
37	20	Mordecai Jones, . .	16	. .	. .	American,	Driver, ...	Wyoming, ...
38	21	Bryant Berry, . . .	23	. .	. .	Irish, . .	Runner, . . .	do. . . . .
39	25	Thos. McCormick, .	55	1	2	Irish, . .	Miner, ...	do. . . . .
40	27	Patrick Boyle, . . .	23	. .	. .	Irish, . .	Laborer, . . .	Forty Fort, ...
41	30	Sandy Porter, . . .	. .	1	6	English, .	Miner, ...	Fuller Colliery, ...
42	Aug. 5	Christian Conyard,	. .	1	1	Irish, . .	Laborer, . . .	Prospect, ...
43	12	Patrick Hughes, . .	14	. .	. .	Irish, . .	Door boy, . .	Henry, ...
44	21	Patrick Mulligan, .	17	. .	. .	Irish, . .	Driver, ...	Laurel Run, ...
45	26	Timothy Kinney, .	25	. .	. .	Irish, . .	Miner, ...	Enterprise, ...
46	29	William Metzgar, .	12	. .	. .	American,	Slate picker, .	Laurel Run, ...
47	Sep. 11	Alex. Meriskey, . .	26	. .	. .	Polish, . .	Laborer, . . .	East Boston, ...
48	12	Thomas Heckard, .	17	. .	. .	English, .	Door boy, . .	Schooley, ...
49	14	Charles Reed, . . .	20	. .	. .	English, .	Laborer, . . .	Harry E., ...
50	15	James Farrell, . . .	15	. .	. .	American,	Driver, ...	East Boston, ...
51	26	John Waverka, . .	35	1	. .	German, .	Miner, ...	Black Diamond, ...
52	Oct. 9	James Broderick, .	19	. .	. .	Irish, . .	Laborer, . . .	Harry E., ...
53	16	Frank Naffosky, . .	45	1	. .	German, .	Miner, ...	Forty Fort, ...
54	19	Jos. Wescompsey, .	24	1	. .	Polish, . .	Laborer, . . .	Schooley, ...
55	26	James Mackin, . .	19	. .	. .	Irish, . .	Laborer, . . .	do. . . . .

The above accidents occurred in mines of that portion of the Second district which, under the old law, of an inspector for the Second district In addition to the above list, there were 27 reported as being

the Anthracite coal fields of Pennsylvania, with remarks on the cause of each accii ing December 31, 1885.

Remarks on Extent of Injury and Cause of Accidents.	Explosion of CH4 gas.	Falling of roof and coal.	Falling down shafts.	Crushed by mine cars.	Explosion of powder and blasts	Miscellaneous.	On surface.	Totals.	Number.
Both were painfully burned on faces and hands by an explosion of gas; David Roberts was fatally burned at the same time,	1	. .	. .	. .	. .	. .	. .	1	1
	1	. .	. .	. .	. .	. .	. .	1	2
Skull slightly fractured and body hurt by a fall of coal,	. .	1	. .	. .	. .	. .	. .	1	3
Several ribs broken and hip injured by a fall of black rock,	. .	1	. .	. .	. .	. .	. .	1	4
Two fingers crushed by being caught between car bumpers,	. .	. .	. .	1	. .	. .	. .	1	5
Thigh broken by a runaway car which ran upon him,	. .	. .	. .	1	. .	. .	. .	1	6
Severe scalp wound; struck by a piece of falling coal,	. .	1	. .	. .	. .	. .	. .	1	7
Spine dislocated; caught between cage and buntin in shaft,	. .	. .	. .	. .	. .	1	. .	1	8
Hips and limbs painfully bruised by a fall of rock,	. .	1	. .	. .	. .	. .	. .	1	9
Hips and limbs injured by the same fall of rock,	. .	1	. .	. .	. .	. .	. .	1	10
Leg broken by a fall of rock,	. .	1	. .	. .	. .	. .	. .	1	11
Leg broken by the same fall of rock,	. .	1	. .	. .	. .	. .	. .	1	12
Injured about his face and head by a fall of rock,	. .	1	. .	. .	. .	. .	. .	1	13
Back injured by a fall of rock,	. .	1	. .	. .	. .	. .	. .	1	14
Foot severely bruised and slight cut on head by a fall of rock,	. .	1	. .	. .	. .	. .	. .	1	15
Foot crushed; caught in frog till the car ran over it,	. .	. .	. .	1	. .	. .	. .	1	16
Painfully injured by a fall of rider coal,	. .	1	. .	. .	. .	. .	. .	1	17
Foot badly hurt by being caught under the cage,	. .	. .	. .	. .	. .	1	. .	1	18
Arm broken in two places, A plank was struck loose in the shaft by a buntin, which was lowered, and	. .	. .	. .	. .	. .	1	. .	1	19
Shoulder bone fractured, it struck these men at the bottom.	. .	. .	. .	. .	. .	1	. .	1	20
Painfully burned on faces and hands by an explosion of gas,	1	. .	. .	. .	. .	. .	. .	1	21
which occurred while they were examining old workings,	1	. .	. .	. .	. .	. .	. .	1	22
Little finger cut off by spragging a car,	. .	. .	. .	1	. .	. .	. .	1	23
Face and arms severely burned by an explosion of powder,	. .	. .	. .	. .	1	. .	. .	1	24
Both burned on faces and hands by an explosion of gas; the laborer neglected to close the check-door when pushing a car through,	1	. .	. .	. .	. .	. .	. .	1	25
causing gas to accumulate and fire from their lamps,	1	. .	. .	. .	. .	. .	. .	1	26
Left arm broken by coupling culm cars,	. .	. .	. .	. .	. .	. .	1	1	27
Hand crushed in cog-wheels,	. .	. .	. .	. .	. .	. .	1	1	28
Leg broken; partition between chutes in breaker fell on him,	. .	. .	. .	. .	. .	. .	1	1	29
Collar-bone fractured by being squeezed between a car and mule,	. .	. .	. .	1	. .	. .	. .	1	30
Hip-bone fractured; caught between cars,	. .	. .	. .	. .	. .	. .	1	1	31
While pushing a car, he fell on track and broke his arm,	. .	. .	. .	. .	. .	1	. .	1	32
Arm broken and face bruised by a premature blast,	. .	. .	. .	. .	1	. .	. .	1	33
While tamping a hole the powder fired, bruising and cutting them	. .	. .	. .	. .	1	. .	. .	1	34
quite badly,	. .	. .	. .	. .	1	. .	. .	1	35
Leg broken in two places and body injured by a fall of roof,	. .	1	. .	. .	. .	. .	. .	1	36
Arm broken; caught between cars,	. .	. .	. .	1	. .	. .	. .	1	37
Hand severely injured by a car running over it,	. .	. .	. .	1	. .	. .	. .	1	38
Foot severely crushed by a fall of coal,	. .	1	. .	. .	. .	. .	. .	1	39
Leg broken by a fall of coal,	. .	1	. .	. .	. .	. .	. .	1	40
One rib fractured and body slightly bruised by a fall of rock,	. .	1	. .	. .	. .	. .	. .	1	41
Left leg broken by a piece of rock sliding on it,	. .	. .	. .	. .	. .	1	. .	1	42
Leg broken by a fall of rock,	. .	1	. .	. .	. .	. .	. .	1	43
Severely injured by falling under a car,	. .	. .	. .	. .	. .	. .	1	1	44
He cut his thumb off with an ax while making a wedge,	. .	. .	. .	. .	. .	1	. .	1	45
Two fingers cut off by meddling with blowing machine in the blacksmith shop,	. .	. .	. .	. .	. .	. .	1	1	46
Toes all cut off one foot by being caught under a descending cage,	. .	. .	. .	. .	. .	1	. .	1	47
Two ribs and one arm fractured by falling under a car,	. .	. .	. .	1	. .	. .	. .	1	48
Head and foot painfully injured by a fall of coal,	. .	1	. .	. .	. .	. .	. .	1	49
Wrist broken by falling from a mule's back,	. .	. .	. .	. .	. .	1	. .	1	50
Leg broken by coal flying from a blast,	. .	. .	. .	. .	1	. .	. .	1	51
Thigh broken and body bruised by a fall of rock,	. .	1	. .	. .	. .	. .	. .	1	52
Collar-bone fractured and cut on face by a fall of coal,	. .	1	. .	. .	. .	. .	. .	1	53
Leg broken by a fall of black rock,	. .	1	. .	. .	. .	. .	. .	1	54
Arm broken between cars,	. .	. .	. .	1	. .	. .	. .	1	55
	6	20	. .	9	5	9	6	55	

was in the Middle district of Luzerne and Carbon counties. They occurred prior to the appointment only slightly injured, adding which would make a total of 82.

TABLE No. II.—*A list of accidents resulting in death in the Third district of the* *for the year ending*

Number.	DATE.	Names of Persons Killed.	Age.	Widows.	Orphans.	Nationality.	Occupation.	Names of the Collieries.
1	Jan. 8	Frank Skivitzky, .	20	. .	. .	Polish, . .	Driver, ...	No. 1 Slope, Nanticoke, . .
2	9	Lewis Derr, ...	22	. .	. .	Polish, . .	Miner, ...	Nottingham, ...
3	16	Paul Polinsky, . . .	27	. .	. .	Polish, . .	Laborer, . . .	No. 2 Shaft, Nanticoke, . .
4	20	Thomas Smith, . .	35	1	5	English, .	Engineer, . .	Stanton, ...
5	26	Daniel Eagan, . . .	24	. .	. .	Irish, . .	Sinker, . . .	Woodward, No. 1, ...
6	Feb. 3	Enoch Jones, . . .	23	. .	. .	Welsh, . .	Driver, ...	Lance, No. 11, ...
7	7	John Hennesy, . .	33	1	3	Irish, . .	Miner, ...	Avondale, ...
8	17	James Solomon, . .	55	1	. .	English, .	Laborer, . . .	Hillman Vein, ...
9	17	John D. Jones, . .	30	. .	. .	Welsh, . .	Laborer, . . .	Hillman Vein, ...
10	28	George Stonyenke,	30	1	2	Hungarian,	Loader, . . .	No. 5 Breaker, Nanticoke,
11	Mar. 20	Michael Haley, . .	45	1	4	Irish, . .	Miner, ...	Gaylord, ...
12	April 6	Vincent Folliefsky,	40	. .	. .	Polish, . .	Miner, ...	No. 2 Shaft, Nanticoke, . .
13	13	Michael St. John, .	28	1	1	Irish, . .	Sinker, ...	Woodward, No. 1, ...
14	15	Frank Dinany, . . .	16	. .	. .	Irish, . .	Driver, ...	Nottingham, ...
15	23	George Williams, .	21	1	1	English, .	Sinker, ...	South Wilkes-Barre, ...
16	23	John Williams, . .	38	1	6	English, .	Miner, ...	Lance, No. 11, ...
17	May 26	John Tabosky, . . .	25	. .	. .	Hungarian,	Laborer, . . .	Nottingham, ...
18	June 4	Frank Fartkofsky,	28	1	1	Polish, . .	Miner, ...	No. 4 Slope, Nanticoke, .
19	4	Jos. Grudofsky, . .	40	1	2	Polish, . .	Laborer, . . .	
20	4	Christian Powell, .	36	1	3	German, .	Bratticeman,	
21	18	Michael Sweeney, .	36	1	8	Irish, . .	Miner, ...	Alden, ...
22	22	Thomas Hughes, .	45	. .	. .	Irish, . .	Laborer, . . .	No. 5 Breaker, Nanticoke,
23	22	Richard Emmitt, .	45	1	4	German, .	Miner, ...	Hollenback, ...
24	23	Thomas Thomas, .	27	. .	. .	Welsh, . .	Laborer, . . .	No. 4 Slope, Nanticoke, . .
25	27	Wm. Hatchwell, . .	27	1	1	English, .	Miner, ...	Boston, ...
26	July 3	Patrick Gallagher,	30	. .	. .	Irish, . .	Laborer, . . .	Warrior Run, ...
27	6	Michael Furtie, . .	26	. .	. .	Polish, . .	Laborer, . . .	Reynolds, ...
28	8	Llewellyn Daniels,	35	1	6	Welsh, . .	Miner, ...	No. 2 Slope, Nanticoke, . .
29	18	John Smith, ...	43	1	1	Irish, . .	Miner, ...	Alden, ...
30	27	John Adomzact, . .	32	. .	. .	Polish, . .	Laborer, . . .	No. 2 Shaft, Nanticoke, . .
31	Aug. 5	Thomas Hennerty,	45	1	4	Irish, . .	Laborer, . . .	Hollenback, ...
32	11	Wilson Rymer, . . .	. .	1	2	American,	Miner, ...	West End, ...
33	11	John Bilby, ...	. .	1	4	American,	Laborer, . . .	
34	11	Nicholas Bertels, .	. .	1	5	German, .	Miner, ...	
35	11	James Fry, ...	. .	1	2	American,	Miner, ...	
36	11	H. O. Meade, . . .	. .	1	2	American,	Miner, ...	
37	11	John Wyurkoski, .	25	1	. .	Polish, . .	Laborer, . .	
38	11	Peter Boruzki, . . .	27	. .	. .	Polish, . .	Miner, ...	
39	11	James Whalen, . .	55	. .	. .	Irish, . .	Laborer, . . .	
40	11	William Zienty, . .	24	. .	. .	Polish, . .	Laborer, . . .	
41	11	Anthony Boruzki, .	25	. .	. .	Polish, . .	Laborer, . . .	
42	21	John M. Smith, . .	30	1	3	English, .	Miner, ...	No. 4 Slope, Nanticoke, . .
43	Sept. 15	William B. Jones, .	33	1	7	Welsh, . .	Laborer, . . .	No. 2 Shaft, Nanticoke, . .
44	19	James McCabe, . .	52	1	6	Irish, . .	Miner, ...	No. 5, Plymouth, ...
45	24	George Shiner, . .	45	. .	. .	Hungarian,	Miner, ...	Alden, ...
46	26	William Waugh, . .	39	1	1	Scotch, . .	Miner, ...	Newport Tunnel, ...
47	28	James McAndrews,	20	. .	. .	Irish, . .	Miner, ...	Maffit, ...
48	Oct. 7	George Cooper, . .	45	1	6	Irish, . .	Laborer, . . .	No. 2 Shaft, Nanticoke, . .
49	15	Ivor Williams, . . .	14	. .	. .	Welsh, . .	Door boy, . .	Dodson, ...
50	21	Frank Lamoraux, .	34	1	2	American,	Carpenter, . .	No. 2 Shaft, Plymouth, .
51	21	John Kerst, ...	43	1	4	American,	Carpenter, . .	
52	21	Frank Spinnette, .	28	1	2	Polish, . .	Laborer, . . .	
53	21	Anthony Spinnette,	22	. .	. .	Polish, . .	Laborer, . . .	
54	21	Thomas Collins, . .	36	1	4	Irish, . .	Miner, ...	
55	21	Dennis Titus, . .	32	1	5	American,	Carpenter, . .	
56	31	Richard Jennings, .	27	. .	. .	Irish, . .	Miner, ...	No. 2 Shaft, Nanticoke, . .
57	Nov. 9	Michael Stradinsky,	35	1	2	Hungarian,	Laborer, . . .	Newport Breaker, ...
58	16	Henry McCloskey,	34	1	2	Irish, . .	Miner, ...	Maffit, ...
59	17	David Shipps, . . .	45	. .	. .	American,	Miner, ...	Boston, ...

Anthracite coal fields of Pennsylvania, with remarks on the cause of each accident, December 31, 1885.

Remarks on the Causes of the Accidents.	Causes of the Accidents.								Number.
	Explosion of C H4 gas.	Falling of roof and coal.	Falling down shafts.	Crushed by mine cars.	Explosion of powder and blasts.	Miscellaneous under ground.	On surface.	Total.	
Instantly killed by falling under cars,	..	..	..	1	..	..	..	1	1
Fatally hurt by a fall of coal; died the same evening,	..	1	..	..	..	..	..	1	2
Crushed between a car and prop; died the same evening,	..	..	..	1	..	..	..	1	3
Instantly killed; caught between cage and timber at bottom of shaft,	..	..	..	..	..	1	..	1	4
While he and another person were ascending the shaft on the bucket, the engineer failed to stop the engine; they both jumped off above the landing, and Eagan fell back into the shaft and was instantly killed,	..	..	1	..	..	..	..	1	5
Fatally hurt by being jammed between cars; died February 5,	..	..	..	1	..	..	..	1	6
Kicked on the abdomen by a mule; died the following day,	..	..	..	..	..	1	..	1	7
Fatally injured by an explosion of gas; died the same day,	1	..	..	..	..	..	..	1	8
Fatally burned by an explosion of gas; died February 26,	1	..	..	..	..	..	..	1	9
Killed by being crushed between railroad car and post,	..	..	..	..	..	..	1	1	10
Skull fractured by a premature blast; died the following day,	..	..	..	..	1	..	..	1	11
Fatally hurt by a fall of top coal; died the same day,	..	1	..	..	..	..	..	1	12
Instantly killed by falling off the platform to the bottom of shaft,	..	..	1	..	..	..	..	1	13
Fell down the shaft and was instantly killed,	..	..	1	..	..	..	..	1	14
Skull fractured by a stone which fell from side of shaft; died the same day,	..	..	..	..	..	1	..	1	15
Instantly killed by a fall of top coal,	..	1	..	..	..	..	..	1	16
Fatally injured by a fall of coal; died in three hours after,	..	1	..	..	..	..	..	1	17
These three men were fatally burned by an explosion of gas caused by the heedlessness of Fartkofskey. The first died	..	..	..	..	..	..	..	..	18
June 7, the second June 5, and the third on June 17,	3	..	..	..	..	..	..	3	19
Instantly killed by a fall of roof,	..	1	..	..	..	..	..	1	20
Fell under cars and was injured so that he died in two hours after,	..	..	..	..	..	..	1	1	21
Fatally injured by a premature blast; died immediately after,	..	..	..	..	1	..	..	1	22
Fatally injured by a fall of slate; died June 27,	..	1	..	..	..	..	..	1	23
Severely injured by a fall of coal; died on the way home,	..	1	..	..	..	..	..	1	24
Run over by cars; died from injuries received July 5,	..	..	..	1	..	..	..	1	25
Killed by a blast; refused to heed the alarm given,	..	..	..	..	1	..	..	1	26
Instantly killed by a premature blast,	..	..	..	..	1	..	..	1	27
Almost instantly killed by cars running upon him,	..	..	..	1	..	..	..	1	28
Fatally hurt by being run over by cars; died July 29,	..	..	..	1	..	..	..	1	29
Instantly killed by a fall of coal. Ed. McGinnis, the miner, was severely injured at the same time,	..	1	..	..	..	..	..	1	30
All these persons were suffocated by gas arising from the boiler fires in the mine. The fan broke and failed to run at about 11 o'clock, P. M., the previous evening. Some time between this and the following morning the air current reversed, conveying the gases into the slope workings. The miners went to work at 7.30 o'clock as usual, and were affected by the poisonous gases soon after entering their working places. These ten men failed to come out, and were all found lying at various points on the gangway dead.	..	..	..	..	..	1	..	1	31
	..	..	..	..	..	1	..	1	32
	..	..	..	..	..	1	..	1	33
	..	..	..	..	..	1	..	1	34
	..	..	..	..	..	1	..	1	35
	..	..	..	..	..	1	..	1	36
	..	..	..	..	..	1	..	1	37
	..	..	..	..	..	1	..	1	38
	..	..	..	..	..	1	..	1	39
	..	..	..	..	..	1	..	1	40
	..	..	..	..	..	1	..	10	41
Instantly killed by a fall of rock,	..	1	..	..	..	..	..	1	42
Spine dislocated by a fall of rock; died September 17,	..	1	..	..	..	..	..	1	43
Instantly killed by a fall of top coal,	..	1	..	..	..	..	..	1	44
Killed by a fall of roof,	..	1	..	..	..	..	..	1	45
Instantly killed by a fall of rock,	..	1	..	..	..	..	..	1	46
Fatally hurt by a fall of rock in breast; died the samo evening,	..	1	..	..	..	..	..	1	47
Instantly killed by descending cage while looking down the shaft,	..	..	..	..	..	..	1	1	48
Instantly killed; fell off the cage while ascending the shaft,	..	..	1	..	..	..	..	1	49
..... All these persons were fatally burned by explosion of gas at No. 2 Shaft. Gas had accumulated in an abandoned part of the mine, not far from the bottom of the shaft, and it was exploded by one of the workmen who went in there with a naked lamp. There were sixteen persons more or less injured,									
Died Oct. 27, ..	1	..	..	..	..	..	..	1	50
Died Oct. 26, ..	1	..	..	..	..	..	..	1	51
Died Oct. 27, ..	1	..	..	..	..	..	..	1	52
Died Oct. 21, ..	1	..	..	..	..	..	..	1	53
Instantly killed,	1	..	..	..	..	..	..	1	54
	1	..	..	..	..	..	..	1	55
Fatally hurt by a fall of top coal; died the same day,	..	1	..	..	..	..	..	1	56
Instantly killed by falling under a railroad car at the breaker,	..	..	..	..	..	..	1	1	57
Seriously burned by an explosion of powder; died November 24,	..	..	..	..	1	..	..	1	58
Killed by a fall of roof while in the act of setting a prop up,	..	1	..	..	..	..	..	1	58

TABLE No. II—

Number.	DATE.	Names of Persons Killed	Age.	Widows.	Orphans.	Nationality.	Occupation.	Names of the Collieries.
60	Nov. 30	Jacob Swab, ...	52	1	5	German, .	Loader, . . .	Stanton Breaker, ...
61	Dec. 3	Hugo Mills, ...	38	1	5	English, .	Laborer, . . .	No. 1 Shaft, Nanticoke, . .
62	5	John Lynot, ...	45	1	5	Irish, . .	Miner, ...	Empire, ...
63	10	Charles Dwyer, . .	30	. .	. .	German, .	Laborer, . . .	No. 5 Breaker, Nanticoke,
64	18	Thomas Clifford, .	14	. .	. .	Irish, . .	Door boy, . .	No. 1 Slope, Nanticoke, .
65	18	William Danahey, .	15	. .	. .	Irish, . .	Driver, ...	
66	18	Joseph McCarty, .	25	1	. .	Irish, . .	Miner, ...	
67	18	Abram Lewis, . . .	35	1	2	Welsh, . .	Miner, ...	
68	18	Edward Matthews,	20	. .	. .	Welsh, . .	Laborer, . . .	
69	18	Thomas Williams, .	22	. .	. .	Welsh, . .	Laborer, . . .	
70	18	Edward Margraves,	22	. .	. .	English, .	Miner, ...	
71	18	William Elkie. . . .	17	. .	. .	German, .	Runner, . . .	
72	18	Max Longoskie, . .	16	. .	. .	Polish, . .	Driver, ...	
73	18	Mich'l Adamchick,	24	. .	. .	Hungarian,	Laborer, . . .	
74	18	Oliver Kiveler, . . .	32	1	3	American,	Miner, ...	
75	18	William Kiveler, .	18	. .	. .	American,	Laborer, . . .	
76	18	Frank Kiveler, . .	30	1	3	American,	Miner, ...	
77	18	John Shutt, ...	28	1	3	American,	Laborer, . . .	
78	18	August Matule, . .	45	1	3	Polish, . .	Miner, ...	
79	18	Isaac Sarver, . . .	26	. .	. .	American,	Miner, ...	
80	18	John Sarver, ...	20	. .	. .	American,	Laborer, . . .	
81	18	Andrew Low, . . .	26	. .	. .	American,	Miner, ...	
82	18	John Hawk, ...	26	. .	. .	American,	Laborer, . . .	
83	18	Vincent Luke, . . .	23	. .	. .	Polish, . .	Miner, ...	
84	18	L. Jelgoshinskie, .	24	. .	. .	Polish, . .	Laborer, . . .	
85	18	Peter Motulwick, .	25	. .	. .	Polish, . .	Laborer, . . .	
86	18	John Nowack, . . .	26	. .	. .	Polish, . .	Miner, ...	
87	18	Adam Rubinskey, .	26	. .	. .	Polish, . .	Laborer, . . .	
88	18	John Drajno, . . .	35	1	3	Hungarian,	Miner, ...	
89	18	John Sloff, ...	27	1	2	Hungarian,	Laborer, . . .	
				46	145			

Continued.

Remarks on the Causes of the Accidents.	CAUSES OF THE ACCIDENTS.								Number.
	Explosion of CH4 gas.	Falling of roof and coal.	Falling down shafts.	Crushed by mine cars.	Explosions of powder and blasts.	Miscellaneous under ground.	On surface.	Total.	
Killed by falling under a railroad car which he was running from under the breaker,	..	..	..	..	..	..	1	1	60
Killed by fall of rock while at work at the head of a new plane,	..	1	..	..	..	..	..	1	61
Leg severely crushed and his body injured; he returned to a blast, supposing it missed fire, and it exploded as he was approaching it; died December 8,	..	..	..	..	1	..	..	1	62
Instantly killed by a loaded rock car, which ran upon him on the bank,	..	..	..	..	..	..	1	1	63
At about 10 o'clock, A. M., a large body of quick-sand broke into this mine near the face of the workings, and in about one hour filled the lowest gangways all the way out to the main slope, a distance of about 3,000 feet. These 26 persons were closed in, or buried in the sand. While laboring under a mistake as to the locality where the sand broke into the mine, the officers of the company entertained hopes of recovering most of the entombed persons alive, and strennous efforts were made to that effect; but, after setting the surveyors at work to locate the fall as indicated on the surface on the map of the underground workiugs, all hopes of saving them alive were dispelled. The survey showed that the quick-sand had broken in on the apex of a small anticlinal upon which most of the entombed men were working, and that most probably they were caught and covered by the rush of sand in a short time after it broke into the mine.	..	..	..	..	..	1	..	1	64
	..	..	..	..	..	1	..	1	65
	..	..	..	..	..	1	..	1	66
	..	..	..	..	..	1	..	1	67
	..	..	..	..	..	1	..	1	68
	..	..	..	..	..	1	..	1	69
	..	..	..	..	..	1	..	1	70
	..	..	..	..	..	1	..	1	71
	..	..	..	..	..	1	..	1	72
	..	..	..	..	..	1	..	1	73
	..	..	..	..	..	1	..	1	74
	..	..	..	..	..	1	..	1	75
	..	..	..	..	..	1	..	1	76
	..	..	..	..	..	1	..	1	77
	..	..	..	..	..	1	..	1	78
	..	..	..	..	..	1	..	1	79
	..	..	..	..	..	1	..	1	80
	..	..	..	..	..	1	..	1	81
	..	..	..	..	..	1	..	1	82
	..	..	..	..	..	1	..	1	83
	..	..	..	..	..	1	..	1	84
	..	..	..	..	..	1	..	1	85
	..	..	..	..	..	1	..	1	86
	..	..	..	..	..	1	..	1	87
	..	..	..	..	..	1	..	1	88
	..	..	..	..	..	1	..	1	89
	11	17	4	6	6	39	6	89	

TABLE No. II.—*A list of accidents resulting in death in the Second district of the for the year ending*

Number.	DATE.	Names of Persons Killed.	Age.	Widows.	Orphans.	Nationality	Occupation.	Names of the Collieries.
1	Jan. 3	George Woodyat, .	40	1	. .	English, .	Miner, ...	Harry E, ...
2	3	David Roberts, . .	. .	. .	. .	Welsh, . .	Miner, ...	Midvale, ...
3	Mar. 5	John Duffy, ...	17	. .	. .	Irish, . .	Driver, ...	Bennett, ...
4	7	David R. Jones, . .	28	1	1	Welsh, . .	Blacksmith, .	Prospect, ...
5	April 18	William Cooper, . .	30	1	4	English, .	Laborer, . . .	Bennett, ...
6	30	William Tonkin, . .	29	1	4	English, .	Miner, ...	Harry E, ...
7	June 8	Martin Kroutlitz, .	38	1	3	Hungarian,	Laborer, . . .	Black Diamond, ...
8	11	John Lynott, ...	.	1	4	Irish, . .	Miner, ...	Henry, ...
9	17	David Harris, . . .	17	. .	. .	Welsh, . .	Runner, . . .	Schooley, ...
10	July 6	Daniel Donnelly, .	60	1	4	Irish, . .	Miner, ...	Hillman Slope, ...
11	7	David S. Knarr, . .	34	1	3	American,	Tracklayer, .	Raubville Shaft, ...
12	18	John Walsh, ...	27	. .	. .	Irish, . .	Miner, ...	Oak Wood Prospect, ...
13	25	William Pyfiler, . .	30	1	2	English, .	Miner, ...	Prospect, ...
14	Aug. 3	James Bromage, . .	20	. .	. .	English, .	Footman, . .	Black Diamond, ...
15	8	John J. Barrett, . .	55	1	5	English, .	Miner, ...	
16	Sept. 2	William Kenny, . .	14	. .	. .	American,	Slate-picker, .	Laurel Run, ...
17	2	John J. Martin, . .	35	. .	. .	Irish, . .	Miner, ...	Oak Wood Prospect, . . .
18	2	James Kearney, . .	25	. .	. .	Irish, . .	Laborer, . . .	
19	2	Thomas Jenkins, .	30	1	2	Welsh, . .	Miner, ...	
20	2	John Peterson, . .	25	1	. .	Swede, . .	Miner, ...	
21	4	Dugald Burt, ...	33	1	1	Scotch, . .	Miner, ...	Bennett, ...
22	21	Anthony Ronosos, .	20	. .	. .	Polish, . .	Laborer, . . .	Clear Spring, ...
23	Oct. 15	Martin Johanson, .	24	1	1	Swede, . .	Laborer, . . .	Clear Spring, ...
24	17	Michael Gallagher,	45	1	. .	Irish, . .	Co-laborer, .	Mill Creek Slope, ...
25	21	Thomas Spellman, .	. .	1	. .	Irish, . .	Laborer, . . .	Henry, ...
26	26	John Ballock, . . .	30	1	1	Hungarian,	Laborer, . . .	Forty Fort, ...
				17	35	. . . . .	. . . . .	. . . . .

The above accidents occurred in the mines of that portion of the Second district which, under the old of an inspector for the Second district.

Anthracite coal field of Pennsylvania, with remarks on the cause of each accident, December 31, 1885.

Remarks on the Causes of the Accidents.	CAUSES OF THE ACCIDENTS.								Number.
	Explosions of CH_4 gas.	Falling of roof and coal.	Falling down shafts.	Crushed by mine cars.	Explosions of powder and blasts.	Miscellaneous under ground.	On surface.	Total.	
Instantly killed by a fall of rock,	..	1	..	..	..	..	..	1	1
Severely burned by an explosion of gas; died January 20,	1	..	..	..	..	..	..	1	2
Instantly killed; head crushed between two cars while uncoupling them,	..	..	..	1	..	..	..	1	3
Instantly killed by runaway cars at bottom of plane,	..	..	..	1	..	..	..	1	4
Almost instantly killed by a fall of rock,	..	1	..	..	..	..	..	1	5
Killed by a blast; returned too soon, believing the squib missed,	..	..	..	..	1	..	..	1	6
Fatally injured by a fall of rock; died in two hours thereafter,	..	1	..	..	..	..	..	1	7
Fatally hurt by a fall of rock; died the same day,	..	1	..	..	..	..	..	1	8
Fatally hurt by falling under a car; died the same day,	..	..	..	1	..	..	..	1	9
Fatally injured by a premature blast; died shortly after being taken home,	..	..	..	1	..	..	..	1	10
Instantly killed by a fall of coal in face of gangway,	..	1	..	..	..	..	..	1	11
Fatally hurt by a premature blast; died about two hours after,	..	..	..	..	1	..	..	1	12
Instantly killed by a fall of rock,	..	1	..	..	..	..	..	1	13
Instantly killed, This accident caused by explosion of gas at top	1	..	..	..	..	..	..	1	14
Fatally burned, of tunnel, Cooper seam. Barrett died Aug. 10,	1	..	..	..	..	..	..	1	15
Leg severely crushed under railroad car. Died September 10,	..	..	..	..	..	..	1	1	16
These four men were killed by a piece of rock falling from the side of shaft upon the cage while they were on it descending the shaft in the morning. There were ten persons on, but six of them escaped uninjured,	..	..	..	..	..	1	..	1	17
	..	..	..	..	..	1	..	1	18
	..	..	..	..	..	1	..	1	19
	..	..	..	..	..	1	..	1	20
Instantly killed by a fall of coal,	..	1	..	..	..	..	..	1	21
Killed by a fall of rock; the miner, Thomas Hines, was slightly hurt the same time,	..	1	..	..	..	..	..	1	22
Fatally hurt by a fall of coal; died the same day,	..	1	..	..	..	..	..	1	23
Instantly killed by runaway cars on slope,	..	..	..	1	..	..	..	1	24
Killed by a blast bursting through pillar from adjoining breast,	..	..	..	..	1	..	..	1	25
Instantly killed by being run over by a trip of cars in the mine,	..	..	..	1	..	..	..	1	26
	3	9	..	6	3	4	1	26	

law, were in the Middle district of Luzerne and Carbon counties. They occurred prior to the appointment

TABLE No. III.—*Showing number of days worked by the breakers, average tons of coal mined per day, number of persons employed persons injured, persons killed, tons of coal mined per person injured and killed, tons of coal mined per life lost, ratio of employés to the persons injured and killed, total tons of coal mined, kegs of powder used, and mules and horses employed during 1885.*

LEHIGH AND WILKES-BARRE COAL COMPANY.

NAMES OF THE COLLIERIES.	Number of days worked by breaker.	Average tons of coal mined per day.	Number of persons employed.	Number of persons seriously injured.	Number of persons killed.	Tons of coal mined per persons injured and killed.	Tons of coal mined per life lost.	Ratio of employees to each person injured and killed.	Total tons of coal mined during 1885.	Number of kegs of powder used for all purposes in the mines.	Number of mules and horses employed.
1. Diamond,	171.20	737	530	8	. . .	15,780	No life lost.	92.1	126,241.14	3,728	49
2. Hollenback,	175.00	1,002	663	5	2	35,080	87,700	94.7	175,401.03	4,991	45
3. Empire,	168.65	1,205	783	2	1	67,768	203,304	261.0	203,304 06	5,718	42
4. Hartford, or Jersey,	173.15	670	517	4	. . .	29,024	No life lost.	129.2	116,098.17	3,698	24
5. Stanton,	151.15	1,081	669	7	2	18,164	81,741	74.3	163,488.17	4,367	43
6. Sugar Notch Shaft,	167.30	913	697	7	. . .	21,822	No life lost.	99.5	152,758.04	4,753	45
7. Sugar Notch Slope,	. . . . .	. . . . .	28	. . .	. . .	. . . . .	. . . . .	. . . .	. . . . .	. . . . .	5
8. Lance, No. 11,	170 00	738	490	3	2	25,096	62,741	98.0	125,482.09	4,196	35
9. Nottingham,	170.60	2,180	1,233	3	3	61,987	123,975	205.5	371,925.03	9,232	91
10. Reynolds,	171.55	799	470	2	1	45,728	137,184	156.6	137,184.06	3,643	50
11. Wanamie,	174.45	794	519	1	. . .	138,659	No life lost.	519.0	138,659.16	5,168	57
Totals Lehigh and Wilkes-Barre Coal Company,	*169.80	10,103	6,599	42	11	32,274	155,500	124.5	1,710,539.15	49,489	486

DELAWARE AND HUDSON CANAL COMPANY.

12. Baltimore Slope,	205.25	431	211	1	. . .	88,575	No life lost.	211.0	88,575.16	3,543	28
13. Baltimore Tunnel,	60.25	470	331	. .	. . .	None injured.	No life lost.	. . . .	28,369.16	1,031	35
14. Conyugham,	194.50	542	270	5	. . .	21,095	No life lost.	54.0	105,478	2,952	24
15. Boston Mines,	190.25	784	317	. . .	2	None injured.	74,652	158.5	149,304	4,222	36
16. No. 2 Plymouth,	39.00	513	338	10	6	1,251	3,337	21 1	20,025.05	801	40
17. No. 3 Plymouth,	206.50	986	425	1	. . .	193,346	No life lost.	425.0	193,346.03	6,232	57
18. No. 4 Plymouth,	159.75	656	320	1	. . .	104,822	No life lost.	320.0	104,822.14	3,848	39
19. No. 5 Plymouth,	197.50	899	424	3	1	44,418	177,674	106.0	177,674.08	4,825	54
Totals Delaware and Hudson Canal Company,	*156.62	5,539	2,636	21	9	28,919	96,399	87.8	867,596.02	27,454	818

SUSQUEHANNA COAL COMPANY.

20.	Breaker, No. 1,	300.50	662	486	60	43	13,342	33,158	32.5	198,970.09	36,683	52
21.	Breaker, No. 2,	307.35	1,612	1,350						495,474.03		161
22.	Grand Tunnel, No. 3,	294.70	648	414						190,970.05		39
23.	Breaker, No. 5,	302.45	1,786	1,106						540,378.17		161
24.	Newport, No. 6,	90.25	453	564	3	2	8,188	20,471	112.8	40,943.03		27
	Totals Susquehanna Coal Company,	259.05	5,661	3,920	63	45	13,580	32,594	36.2	1,466,736.17	36,683	440

KINGSTON COAL COMPANY.

25.	Breaker, No. 1,	209.60	945	416	1	. . .	198,082	No life lost.	416	198,082.07	5,818	42
26.	Breaker, No. 2,	216.60	1,344	661	5	. . .	58,092	No life lost.	132.1	290,462.02	7,632	59
27.	Gaylord,	181.75	936	476	3	1	42,562	170,249	119	170,249.10	4,221	31
	Totals Kingston Coal Company,	202.45	3,259	1,553	9	1	65,979	659,793	155.3	659,793.19	17,731	132

MISCELLANEOUS COAL COMPANIES.

28.	Alden,	212.67	910	542	2	3	38,591	64,319	108.4	192,958	8,790	44
29.	Avondale,	181.60	832	450	3	1	50,396	151,190	112.5	151,190.08	3,782	102
30.	Chauncey,	185.00	99	60	1	. . .	18,420	No life lost.	60 0	18,420	320	7
31.	Dodson,	190.05	793	375	6	1	21,532	150,730	53.5	150,730	5,160	39
32.	Dorrance,	145.95	131	108	. . .	. . .	None injured.	No life lost.	. . . .	19,231.19	774	5
33.	East End,	132.50	162	157	. . .	. . .	None injured.	No life lost.	. . . .	21,486.05	885	. . . . .
34.	West End,	281.20	458	297	3	10	9,915	12,889	22 8	128,899.11	4,295	. . . . .
35.	Franklin,	177.25	785	450	6	. . .	23,212	No life lost.	75.0	139,274.18	2,989	35
36.	Hillman Vein,	177.05	352	243	14	2	3,894	31,158	15.1	62,316	2,379	15
37.	Moffit,	164.20	710	303	. . .	2	57,839	57,839	151.5	115,679.10	3,937	20
38.	Parrish Colliery,	259.00	553	365	1	. . .	143,249	No life lost.	365	143,249.18	4,879	23
39.	Red Ash, No. 1,	151.05	700	311	2	. . .	52,911	No life lost.	155.5	105,822.19	3,626	23
40.	Red Ash, No. 2,	153.75	716	342	2	. . .	55,110	No life lost.	171	110,220.13	3,772	23
41.	Salem,	225.00	147	117	2	. . .	16,549	No life lost.	58.5	33,098	1,080	17
42.	Warrior Run,	170.00	472	245	1	1	80,400	80,400	122.5	80,400	1,643	17
	Totals Miscellaneous Coal Companies,	187.08	7,873	4,365	43	20	23,380	73,648	69.2	1,472,978.01	48,311	340

TABLE No. III—*Continued.*

RECAPITULATION.

NAMES OF THE COLLIERIES.	Number of days worked by breaker.	Average tons of coal mined per day.	Number of persons employed.	Number of persons injured.	Number of persons killed.	Tons of coal mined per person injured and killed.	Tons of coal mined per life lost.	Ratio of employees to each person injured and killed.	Total tons of coal mined during 1885.	Number of kegs of powder used for all purposes in the mines.	Number of mules and horses employed.
Lehigh and Wilkes-Barre Coal Company,	169.30	10,103	6,599	42	11	32,274	155,500	124.5	1,710,539.15	49,489	486
Delaware and Hudson Canal Company,	156.62	5,589	2,636	21	9	28,919	96,399	87.8	867,596.02	27,454	313
Susquehanna Coal Company,	259.05	5,661	8,920	63	45	13,580	32,594	36.2	1,466,736.17	36,693	440
Kingston Coal Company,	202.45	3,259	1,553	9	1	65,979	659,793	155.3	659,793.19	17,731	132
Miscellaneous Coal Companies,	187.03	7,873	4,365	43	20	23,380	73,648	69.2	1,472,978.01	48,311	340
	*194.90	31,696	19,073	178	86	23,400	71,333	72.2	6,177,644.13	179,668	1,711

*Averages.

There were three men killed in shafts not producing coal; two at the Woodward, No. 1, Shaft, and one at the South Wilkes-Barre Shaft; adding those makes the number of fatal accidents 89. The fractions of tons are twentieths in the above table.

TABLE No. IV—*The number of each class of employés at each colliery during the year 1885.*

LEHIGH AND WILKES-BARRE COAL COMPANY.

Names of the Collieries.	Number of Persons Employed Inside.							Number of Persons Employed Outside.							Grand totals inside and outside.
	Bosses.	Miners.	Laborers.	All company men.	Drivers and runners.	Door boys.	Totals inside.	Bosses.	Mechanics.	Head and plate men.	All company men.	Drivers and runners.	Slate pickers.	Totals outside.	
1. Diamond,	1	80	105	86	51	30	353	1	19	10	10	7	130	177	530
2. Hollenback,	1	130	181	67	42	16	437	1	25	12	45	6	137	226	663
3. Empire,	1	159	206	67	52	26	511	1	16	27	45	6	177	272	783
4. Hartford, or Jersey,	1	103	124	50	14	17	309	1	9	18	45	2	133	208	517
5. Stanton,	1	108	170	75	45	30	429	1	26	18	28	3	164	240	669
6. Sugar Notch Shaft,	1	125	169	59	46	24	424	1	12	20	72	8	160	273	697
7. Sugar Notch Slope,	1	....	....	15	....	....	16	....	4	....	8	....	....	12	28
8. Lance, No. 11,	1	119	120	48	42	16	346	1	9	9	30	5	90	144	490
9. Nottingham,	1	258	288	112	101	54	814	1	14	31	48	5	320	419	1,233
10. Reynolds,	1	100	91	34	42	27	295	1	8	10	34	6	116	175	470
11. Wanamie,	1	134	100	48	37	32	352	1	12	20	25	7	102	167	519
12. South Wilkes-Barre,	1	....	....	....	....	....	1	....	1	....	5	....	....	6	7
Totals Lehigh and Wilkes-Barre Coal Company,	12	1,316	1,554	661	472	272	4,287	10	155	175	395	55	1,529	2,319	6,606

DELAWARE AND HUDSON CANAL COMPANY.

13. Baltimore Slope,	1	39	40	30	23	5	138	1	3	6	23	5	35	73	211
14. Baltimore Tunnel,	1	60	55	30	25	7	178	1	7	7	64	2	72	153	331
15. Conyngham,	1	48	48	40	27	12	176	1	4	8	30	1	50	94	270
16. Boston Mines,	1	68	68	29	27	10	203	1	8	7	44	4	50	114	317
17. No. 2 Plymouth,	2	68	67	55	33	12	237	1	8	5	31	4	52	101	338
18. No. 3 Plymouth,	2	103	96	38	48	21	308	1	6	5	29	5	71	117	425
19. No. 4 Plymouth,	1	71	67	37	35	19	230	1	9	8	21	3	48	90	320
20. No. 5 Plymouth,	3	98	80	65	48	29	323	3	6	10	32	2	48	101	424
Totals Delaware and Hudson Canal Company,	12	555	521	324	266	115	1,793	10	51	56	274	26	426	843	2,636

TABLE No. IV—*Continued.*

SUSQUEHANNA COAL COMPANY.

NAMES OF THE COLLIERIES.	NUMBER OF PERSONS EMPLOYED INSIDE.							NUMBER OF PERSONS EMPLOYED OUTSIDE.							Grand totals inside and outside.
	Bosses.	Miners.	Laborers.	All company men.	Drivers and runners.	Door boys.	Totals inside.	Bosses.	Mechanics.	Head and plate men.	All company men.	Drivers and runners.	Slate pickers.	Totals outside.	
21. Breaker, No. 1,	2	100	120	17	23	6	268	1	30	10	102	12	63	218	486
22. Breaker, No. 2,	2	275	420	153	151	69	1,070	1	18	28	87	11	135	280	1,350
23. Grand Tunnel, No. 3,	1	72	110	30	17	4	234	1	12	3	29	3	127	180	414
24. Breaker, No. 5,	2	200	300	178	102	53	835	1	32	21	80	9	128	271	1,106
25. Newport, No. 6,	1	90	175	45	11	9	331	1	51	9	91	3	78	233	564
Totals Susquehanna Coal Company,	8	737	1,125	423	304	141	2,738	5	143	76	389	38	531	1,182	3,920

KINGSTON COAL COMPANY.

26. Nos. 1 and 4 Shafts,	2	120	79	30	37	20	288	2	2	5	25	4	90	128	416
27. Nos. 2 and 3 Shafts,	2	178	167	29	53	38	467	2	19	9	33	1	130	194	661
28. Gaylord,	1	125	70	36	31	15	278	1	22	16	35	4	120	198	476
Totals Kingston Coal Company,	5	423	316	95	121	73	1,033	5	43	30	93	9	340	520	1,553

MISCELLANEOUS COAL COMPANIES.

29. Alden,	1	174	113	44	40	10	382	1	16	16	18	5	104	160	542
30. Avondale,	2	105	107	33	24	11	282	1	11	7	33	6	110	168	450
31. Channcey,	1	10	10	12	6	. . . .	39	1	3	2	5	. . . .	10	21	60
32. Dodson,	1	107	60	26	30	11	235	1	9	9	43	4	69	140	375
33. East End,	1	33	25	11	15	1	86	1	1	4	17	. . . .	48	71	157
34. West End,	1	77	66	15	27	4	190	1	5	6	39	1	55	107	297
35. Franklin,	1	80	75	48	26	20	250	1	20	12	90	12	65	200	450

36. Hillman Vein,	1	35	57	58	11	14	176	1	2	8	26	2	28	67	243
37. Moffit,	1	70	65	6	13	10	165	1	12	21	16	6	82	138	303
38. Parrish Colliery,	1	69	101	34	29	10	244	1	6	9	22	....	83	121	365
39. Red Ash, No. 1,	1	102	41	10	21	11	186	1	3	10	50	4	57	125	311
40. Red Ash, No. 2,	1	97	80	7	24	13	222	1	3	14	53	3	46	120	342
41. Salem,	2	29	26	8	5	2	72	1	3	4	8	4	25	45	117
42. Warrior Run,	1	70	54	15	7	10	157	1	4	7	25	6	45	88	245
43. Dorrance,	1	11	18	26	3	....	59	1	5	4	28	1	10	49	108
Totals Miscellaneous Coal Companies,	17	1,069	898	353	281	127	2,745	15	103	133	478	54	837	1,620	4,365

RECAPITULATION.

Lehigh and Wilkes-Barre Coal Company,	12	1,316	1,554	661	472	272	4,287	10	155	175	395	55	1,529	2,319	6,606
Delaware and Hudson Canal Company,	12	535	521	324	266	115	1,793	10	51	56	274	26	426	843	2,636
Susquehanna Coal Company,	8	737	1,125	423	304	141	2,738	5	143	76	389	38	531	1,182	3,920
Kingston Coal Company,	5	423	316	95	121	73	1,033	5	43	30	93	9	340	520	1,553
Miscellaneous Coal Companies,	17	1,069	898	353	281	127	2,745	15	103	133	478	54	837	1,620	4,365
Totals all Coal Companies,	54	4,100	4,414	1,856	1,444	728	12,596	45	495	470	1,629	182	3,663	6,484	19,080

TABLE No. V.—*Showing number of days worked by each breaker at every colliery, and for each month during 1885.*

LEHIGH AND WILKES-BARRE COAL COMPANY.

NAMES OF THE COLLIERIES.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1. Diamond,	11.00	11.80	11.20	13.50	11.50	12.50	15.20	14.90	15.40	16.60	16.80	20.80	171.20
2. Hollenback,	11.20	12.10	10.05	13.60	12.00	13.10	15.85	15.50	14.95	16.30	19.00	21.35	175.00
3. Empire,	11.20	12.05	10.25	13.60	12.80	12.40	13.20	15.00	14.85	15.55	17.30	20.45	168.65
4. Jersey,	11.20	8.85	11.20	14.10	12.80	12.45	15.60	14.90	15.25	16.30	18.90	21.60	173.15
5. Stanton,	10.15	6.10	12.00	12.10	11.70	12.90	15.60	15.50	14.30	18.00	16.80	6.00	151.15
6. Sugar Notch Shaft,	9.30	3.80	12.00	13.00	12.80	13.30	15.80	15.10	15.20	16.20	19.90	20.60	167.30
7. Sugar Notch Slope,	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
8. Lance, No. 11,	10.60	12.80	10.10	14.20	12.00	13.05	16.20	15.00	14.80	15.35	18.90	17.00	170.00
9. Nottingham,	10.90	12.45	9.90	13.45	12.50	12.50	16.10	14.80	15.00	15.15	18.50	19.35	170.60
10. Reynolds,	10.85	11.85	10.90	13.50	12.20	12.20	15.80	15.20	15.35	15.10	19.00	19.60	171.55
11. Wanamie,	11.10	12.80	11.20	14.10	12.80	12.50	15.20	14.90	15.10	15.40	19.50	19.85	174.45

DELAWARE AND HUDSON CANAL COMPANY.

12. Baltimore Slope,	13.25	12.75	12.50	16.50	15.00	14.75	15.25	16.50	23.50	25.50	21.50	18.25	205.25
13. Baltimore Tunnel,	2.50	.....	.....	.....	.....	.....	.....	.....	.....	20.50	22.00	15.25	60.25
14. Conyngham,	12.50	12.75	12.75	16.00	15.50	14.75	13.50	12.25	25.25	24.00	15.75	19.50	194.50
15. Boston Mines,	12.25	12.75	12.00	15.25	14.75	12.75	15.00	15.25	17.00	26.00	20.50	16.75	190.25
16. No. 2, Plymouth,	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20.50	18.50	39.00
17. No. 3, Plymouth,	12.00	13.00	12.25	15.75	15.00	15.00	15.25	17.25	24.00	26.50	23.75	16.75	206.50
18. No. 4, Plymouth,	1.75	.....	.....	15.75	15.00	14.75	14.50	17.25	21.25	23.25	20.25	16.00	159.75
19. No. 5, Plymouth,	11.25	12.50	13.00	15.50	11.00	14.00	15.25	17.00	23.50	23.75	23.25	17.50	197.50

SUSQUEHANNA COAL COMPANY.

20. Breaker, No. 1,	23.90	24.00	25.60	26.00	25.50	26.70	25.30	25.00	26.00	27.00	25.00	20.50	300.50
21. Breaker, No. 2,	24.50	24.00	26.00	26.00	25.50	26.40	26.00	26.00	26.00	27.90	25.80	23.25	307.85
22. Grand Tunnel, No. 3,	23.40	22.40	25.80	25.80	25.00	26.00	25.90	24.30	24.70	25.70	24.00	21.70	294.70
23. Breaker, No. 5,	23.90	22.90	25.50	26.00	25.50	26.00	26.00	26.00	26.00	26.75	24.75	28.25	302.45
24. Newport, No. 6,	.....	.....	.....	.....	.....	.....	.....	.....	13.50	27.00	25.00	24.75	90.25

KINGSTON COAL COMPANY.

25. Breaker, No. 1,	9.65	13.30	15.10	11.35	11.70	14.45	16.40	19.80	23.80	26.00	24.00	24.55	209.60
26. Breaker, No. 2,	10.70	13.15	15.00	12.20	10.15	13.80	18.30	20.00	24.70	26.70	24.60	26.70	216.00
27. Gaylord,	7.00	9.25	11.15	7.70	10.30	14.50	15.50	18.50	21.00	22.35	23.00	21.50	181.75

MISCELLANEOUS COAL COMPANIES.

28. Alden,	12.45	10.75	12.20	16.85	16.25	17.075	20.575	23.50	22.325	22.825	19.975	17.90	212.675
29. Avondale,	10.40	13.30	20.20	3.00	6.00	13.30	17.00	19.00	22.20	24.70	17.10	15.40	181.60
30. Chauncey,	13.00	11.00	15.00	15.00	13.00	12.00	17.00	18.00	16 00	14.00	22.00	19.00	185.00
31. Dodson,	7.80	10.75	12.40	12.95	10.10	13.30	15.85	19.50	23.65	25.10	23.40	15.25	190.05
32. East End,	18.60	18.95	22.70	22.05	21.60	20.00	8.60	.....	.....	.....	.....	.....	132.50
33. West End,	21.90	23.50	26.00	23.15	25.25	26.00	24.80	17.00	22.00	25.20	23.30	23.10	281.20
34. Franklin,	12.75	5.25	9.75	12.75	13.75	13.75	15.00	16.00	18.50	23.25	22.25	14.25	177.25
35. Hillman Vein,	13.50	9.90	16.40	11.85	12.55	11.15	10.80	16.275	18.95	19.925	17.40	18.35	177.05
36. Maffit,	8.60	7.20	10.70	12.20	12.40	12.00	12.70	12.00	18.00	21.40	20.70	16.30	164.20
37. Parrish Breaker,	16.60	17.45	21.50	18.20	19.45	21.30	22.20	22.95	24.95	26.30	23.30	24.80	259.00
38. Red Ash, No. 1,	8.05	8.25	9.20	11.20	11.70	12.60	11.60	11.25	13.35	17.30	20.55	16.00	151.05
39. Red Ash, No. 2,	7.95	8.10	9.65	11.10	11.95	10.40	12.95	11.25	14.00	18.60	20.65	17.15	158.75
40. Salem,	18.25	16.75	19.00	13.00	18.50	21.25	16.00	16.75	20.00	22.75	22.25	20.50	225.00
41. Warrior Run,	8.50	8.00	10.00	11.00	12.00	14.00	16.00	15.50	21.00	24.00	21.00	9.00	170.00
42. Dorrance,	23.00	18.65	21.95	19.60	18.80	7.55	.....	.....	.....	.....	14.55	21.85	145.95

TABLE No. VI.—*Showing the number and horse-power of each class of engines and number of steam boilers in use at each colliery during 1885.*

LEHIGH AND WILKES-BARRE COAL COMPANY.

NAMES OF THE COLLIERIES.	Number of hoisting engines.	Horse-power.	Number of breaker engines.	Horse-power.	Number of pumping engines.	Horse-power.	Number of fan engines.	Horse-power.	Number of donkey pumps.	Horse-power.	Number of mine locomotives.	Horse-power.	Total number of engines.	Total horse-power of engines.	Number of steam boilers.
1. Diamond,	4	400	1	60	1	80	1	80	....	....	1	30	8	650	33
2. Hollenback,	8	753	1	80	1	400	2	180	3	110	....	....	15	1,528	21
3. Empire,	3	280	1	60	1	850	2	110	1	30	2	60	10	890	30
4. Hartford, or Jersey,	4	388	2	50	4	566	2	80	3	....	1	35	16	1,119	30
5. Stanton,	7	710	1	60	1	560	3	180	....	....	1	35	13	1,545	38
6. Sugar Notch Shaft,	3	200	2	65	3	210	2	80	....	....	....	....	10	555	17
7. Sugar Notch Slope,	4	280	2	120	4	340	2	80	....	....	....	....	12	820	26
8. Lance, No. 11,	4	608	1	50	3	100	1	125	....	....	....	....	9	883	12
9. Nottingham,	4	528	1	60	3	240	1	80	....	....	2	60	11	968	27
10. Reynolds,	2	80	1	50	....	....	3	100	....	....	....	....	6	230	13
11. Wanamie,	3	180	2	70	1	175	2	40	....	....	....	....	8	465	17
12. South Wilkes-Barre,	1	80	....	....	....	....	1	20	....	....	....	....	2	120	6
Totals Lehigh and Wilkes-Barre Coal Company,	47	4,492	15	725	22	3,021	22	1,155	7	140	7	220	120	9,773	260

DELAWARE AND HUDSON CANAL COMPANY.

13. Baltimore Slope,	8	560	1	70	....	....	1	70	4	....	....	....	14	700	17
14. Baltimore Tunnel,	2	70	1	37	1	70	2	160	5	208	2	140	13	685	19
15. Conyngham,	3	180	1	35	1	300	3	120	1	10	....	....	9	645	14
16. Boston Mines,	4	130	1	35	2	120	1	25	2	20	1	80	11	410	15
17. No. 2, Plymouth,	2	120	1	40	3	260	2	55	1	30	....	....	9	505	21
18. No. 3, Plymouth,	2	120	1	35	1	300	1	45	2	204	....	....	7	506	12
19. No. 4, Plymouth,	4	200	1	40	....	....	1	60	3	140	....	....	9	440	12
20. No. 5, Plymouth,	5	220	1	40	1	60	2	75	3	125	1	20	13	540	15
Totals Delaware and Hudson Canal Company,	30	1,600	8	332	9	1,110	13	610	21	737	4	240	85	4,431	125

SUSQUEHANNA COAL COMPANY.

21. Breaker, No. 1,	2	230	2	80	1	45	3	300	1	30	1	40	10	725	26
22. Breaker, No. 2,	7	1,565	1	80	1	55	7	600	3	165	6	260	25	2,725	74
23. Grand Tunnel, No. 3,	5	1,000	1	100	....	....	1	15	2	75	1	40	10	1,230	29
24. Breaker, No. 5,	8	1,600	1	80	1	210	3	180	2	40	2	100	17	2,210	66
25. Newport, No. 6,	8	1,410	1	100	....	....	5	140	2	75	1	40	17	1,765	60
Totals Susquehanna Coal Company,	30	5,805	6	440	3	310	19	1,235	10	385	11	480	79	8,655	255

KINGSTON COAL COMPANY.

26. Breaker, No. 1,	3	480	1	31	9	80	1	13	4	22	....	....	18	642	24
27. Breaker, No. 2,	10	590	1	90	2	160	2	135	6	60	3	94	24	1,129	24
28. Gaylord,	16	2,000	1	70	2	170	1	70	2	10	1	40	23	2,360	24
Totals Kingston Coal Company,	29	3,070	3	191	13	410	4	218	12	92	4	134	65	4,131	72

MISCELLANEOUS COAL COMPANIES.

29. Alden,	2	260	1	75	1	110	1	40	....	....	....	....	5	485	12
30. Avondale,	6	230	1	40	1	90	1	40	5	86	1	20	15	506	26
31. Chauncey,	....	....	1	30	....	....	....	....	....	....	....	....	1	30	4
32. Dodson,	2	192	1	55	2	1,293	1	31	2	15	....	....	8	1,586	12
33. Dorrance,	4	320	1	40	1	80	1	90	....	....	....	....	7	530	12
34. East End,	2	100	1	60	....	....	....	....	....	....	....	....	3	160	9
35. West End,	3	140	1	50	....	....	1	25	3	60	1	25	9	300	15
36. Franklin,	5	235	1	30	2	125	3	90	8	183	2	30	21	693	40
37. Hillman Vein,	3	48	1	20	....	....	2	40	2	....	....	....	8	108	9
38. Maffit,	2	100	1	60	....	....	1	20	....	....	....	....	4	180	6
39. Parrish Colliery,	1	40	1	40	....	....	1	40	....	....	....	....	3	120	7
40. Red Ash, No. 1,	2	50	1	40	....	....	1	20	1	30	....	....	5	140	6
41. Red Ash, No. 2,	2	25	1	30	....	....	....	....	....	....	....	....	3	55	2
42. Salem,	....	....	1	60	....	....	....	....	....	....	....	....	1	60	2
43. Warrior Run,	1	60	1	30	2	....	2	40	2	....	....	....	8	130	20
	35	1,800	15	660	9	1,698	15	476	23	374	4	75	101	5,083	182

TABLE No. VI.—*Continued*

RECAPITULATION.

NAMES OF THE COLLIERIES.	Number of hoisting engines.	Horse-power.	Number of breaker engines.	Horse-power.	Number of pumping engines.	Horse-power.	Number of fan engines.	Horse-power.	Number of donkey pumps.	Horse-power.	Number of mine locomotives.	Horse-power.	Total number of engines.	Total horse-power of engines.	Number of steam boilers.
Lehigh and Wilkes-Barre Coal Company,	47	4,492	15	725	22	3,021	22	1,155	7	140	7	220	120	9,773	260
Delaware and Hudson Canal Company,	30	1,600	8	332	9	1,110	13	610	21	737	4	240	85	4,131	125
Susquehanna Coal Company,	30	5,805	6	440	3	810	19	1,235	10	385	11	480	79	8,655	255
Kingston Coal Company,	29	3,070	3	191	13	410	4	218	12	92	4	184	65	4,131	72
Miscellaneous Coal Companies,	35	1,800	15	660	9	1,698	15	476	23	374	4	75	101	5,083	182
	171	16,767	47	2,348	56	6,549	73	3,694	73	1,728	30	1,149	450	32,073	894

TABLE No. VII.—*Showing the state of ventilation in all the collieries operated in the Third or Wilkes-Barre district, at the close of the year ending December 31, 1885.*

Names of the Collieries.	Water-gauge in inches.	Total cubic feet of air per minute at the inlet.	Cubic Feet of Air Per Minute Passing Near the Face of Workings in Each Split.								Total cubic feet of air per minute passing near the face of workings.	Number of Persons Employed in Each Split on the Day Shift.								Total cubic feet of air per minute passing through the outlet.
			No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	No. 8.		No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	No. 8.	
1. Diamond,	. . .	152,340	21,400	15,000	24,080	11,400	18,400	20,800	28,120	. . . .	139,200	40	25	55	*	*	30	. . .	. . .	152,980
2. Hollenback,	1.60	271,500	43,000	54,200	25,500	46,560	25,300	15,000	. . . .	. . . .	209,560	86	50	65	76	†	30	. . .	. . .	295,000
3. Empire,	2.00	179,700	35,700	15,000	21,000	33,600	13,000	15,800	24,000	. . . .	158,100	25	40	33	73	50	58	70	. . .	195,000
4. Jersey,	. . .	91,600	9,400	8,100	9,800	9,000	10,100	9,000	. . . .	. . . .	55,400	30	19	55	33	36	36	. . .	. . .	90,800
5. Stanton,	. . .	179,350	9,380	28,400	40,890	42,000	24,150	16,800	. . . .	. . . .	161,620	20	74	93	70	35	*	. . .	. . .	218,161
6. Sugar Notch Shaft,	1.30	176,570	18,430	16,100	50,280	23,700	15,860	23,100	15,720	13,300	176,490	69	10	40	14	10	24	53	24	184,680
7. Sugar Notch Slope,	1.00	15,500	14,000	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	14,000	64	. . .	. . .	. . .	. . .	. . .	. . .	. . .	16,000
8. Lance, No. 11,	. . .	142,380	39,780	31,670	27,140	23,100	. . . .	. . . .	. . . .	. . . .	121,690	114	32	28	50	. . .	. . .	. . .	. . .	144,780
9. Nottingham,	. . .	113,200	13,900	22,500	15,200	14,600	16,000	17,200	. . . .	. . . .	99,400	112	123	106	12	118	98	. . .	. . .	141,000
10. Reynolds,	. . .	67,700	39,000	17,100	28,200	. . . .	. . . .	. . . .	. . . .	. . . .	67,200	110	98	96	. . .	. . .	. . .	. . .	. . .	76,300
11. Wanamie,	. . .	65,700	17,100	13,100	18,000	. . . .	. . . .	. . . .	. . . .	. . . .	48,200	78	80	53	. . .	. . .	. . .	. . .	. . .	68,080
12. Baltimore Slope,	. . .	88,250	22,750	15,300	23,400	21,800	. . . .	. . . .	. . . .	. . . .	83,250	39	7	. . .	. . .	. . .	. . .	. . .	. . .	109,860
13. Baltimore Tunnel	. . .	176,000	92,000	34,680	38,400	. . . .	. . . .	. . . .	. . . .	. . . .	165,080	‡	110	54	. . .	. . .	. . .	. . .	. . .	178,600
14. Conyngham,	. . .	129,600	10,250	18,000	15,600	22,200	18,200	14,800	. . . .	. . . .	98,850	*	6	57	19	11	44	. . .	. . .	149,550
15. Boston Mine,	. . .	47,950	16,380	12,660	2,660	3,860	. . . .	. . . .	. . . .	. . . .	35,560	74	68	13	12	. . .	. . .	. . .	. . .	53,090
16. No. 2, Plymouth,	. . .	68,300	25,230	19,100	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	44,340	165	37	. . .	. . .	. . .	. . .	. . .	. . .	71,570
17. No. 3, Plymouth,	. . .	52,530	14,780	18,240	12,230	. . . .	. . . .	. . . .	. . . .	. . . .	45,250	109	110	75	. . .	. . .	. . .	. . .	. . .	52,640
18. No. 4, Plymouth,	. . .	87,470	12,540	18,260	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	30,800	47	62	. . .	. . .	. . .	. . .	. . .	. . .	37,570
19. No. 5, Plymouth,	. . .	143,000	16,000	11,000	14,000	12,000	12,000	10,500	4,000	5,000	84,500	74	31	40	35	70	40	12	10	152,000
20. No. 1 Shaft, Nanticoke,	. . .	121,400	25,000	13,000	13,000	12,900	15,000	16,000	14,000	. . . .	108,900	120	45	60	15	†	60	15	. . .	157,500
21. No. 2 Shaft, Nanticoke,	. . .	134,898	19,060	18,500	14,400	18,000	14,500	10,300	. . . .	. . . .	94,760	75	75	60	63	43	27	. . .	. . .	137,522
22. No. 1 Slope, Nanticoke,	. . .	16,800	3,000	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	3,000	26	. . .	. . .	. . .	. . .	. . .	. . .	. . .	17,000
23. No. 2 Slope, Nanticoke,	. . .	130,000	46,000	20,000	47,500	. . . .	. . . .	. . . .	. . . .	. . . .	113,500	75	12	75	. . .	. . .	. . .	. . .	. . .	152,800
24. No. 3, Grand Tunnel,	. . .	83,175	8,220	14,450	10,895	8,760	16,740	8,670	. . . .	. . . .	67,675	4	18	16	18	40	20	. . .	. . .	87,230
25. No. 4 Slope, Nanticoke,	. . .	183,600	40,000	25,000	39,750	. . . .	. . . .	. . . .	. . . .	. . . .	104,750	70	50	50	8	. . .	. . .	. . .	. . .	208,720
26. No. 4 Tunnel, Nauticoke,	. . .	21,480	13,500	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	13,500	105	. . .	. . .	. . .	. . .	. . .	. . .	. . .	23,800
27. Newport Tunnel,	. . .	67,000	26,000	25,000	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	51,000	64	65	. . .	. . .	. . .	. . .	. . .	. . .	70,000
28. No. 1 Shaft, Kingston,	. . .	63,790	10,700	17,430	21,000	. . . .	. . . .	. . . .	. . . .	. . . .	49,130	16	80	133	. . .	. . .	. . .	. . .	. . .	72,100
29 No. 2 Shaft, Kingston,	. . .	61,090	7,000	15,650	15,400	19,500	9,850	7,850	. . . .	. . . .	75,250	23	27	54	52	36	23	. . .	. . .	85,750
30. No. 3 Shaft, Kingston,	. . .	68,400	17,500	7,600	12,300	8,900	10,500	. . . .	. . . .	. . . .	56,800	80	6	28	25	36	. . .	. . .	. . .	78,800
31. Gaylord,	1.00	114,800	15,500	18,000	19,500	25,200	. . . .	. . . .	. . . .	. . . .	78,200	70	67	75	59	. . .	. . .	. . .	. . .	117,500
32. Alden,	1.20	91,335	9,885	13,435	17,375	8,340	7,670	14,385	16,530	. . . .	87,620	12	55	47	16	13	78	75	. . .	93,700
33. Avondale,	. . .	95,000	13,575	19,200	7,100	8,820	4,700	. . . .	. . . .	. . . .	53,395	39	40	38	86	4	. . .	. . .	. . .	109,832
34. Dodson,	. . .	58,250	16,000	9,400	10,700	6,000	. . . .	. . . .	. . . .	. . . .	42,100	58	45	66	28	. . .	. . .	. . .	. . .	67,520
35. Dorrance,	. . .	115,310	25,841	68,254	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	94,095	4	18	. . .	. . .	. . .	. . .	. . .	. . .	118,192

TABLE No. VII.—*Continued.*

Names of the Collieries.	Water-gauge in inches.	Total cubic feet of air per minute at the inlet.	Cubic Feet of Air Per Minute Passing Near the Face of Workings in Each Split.								Total cubic feet of air per minute passing near the face of workings.	Number of Persons Employed in Each Split on the Day Shift.								Total cubic feet of air per minute passing through the outlet.
			No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	No. 8.		No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	No. 8.	
36. Franklin Slope,	1.00	25,500	10,900	9,000	3,000	. . . .	. . . .	. . . .	. . . .	. . . .	22,900	48	40	21	. . .	. . .	. . .	. . .	. . .	38,400
37. Old Slope,	1.10	. . . .	15,070	9,470	21,760	16,500	7,875	. . . .	. . . .	. . . .	60,675	5	4	21	27	35	. . .	. . .	. . .	81,800
38. Hillman Vein,	1.60	171,450	47,000	50,260	10,900	13,900	. . . .	. . . .	. . . .	. . . .	122,060	50	9	6	18	. . .	. . .	. . .	. . .	176,420
39. Mulhi,	. . . .	67,500	6,000	14,500	7,500	7,000	. . . .	. . . .	. . . .	. . . .	35,000	60	31	50	24	. . .	. . .	. . .	. . .	67,800
40. Parrish,	. . . .	85,000	15,000	6,000	28,000	13,000	. . . .	. . . .	. . . .	. . . .	62,000	60	16	50	36	. . .	. . .	. . .	. . .	102,000
41. Red Ash, No. 1,	. . . .	101,150	31,500	16,000	18,200	10,300	13,600	4,300	. . . .	. . . .	93,900	48	37	17	26	19	18	. . .	. . .	102,220
42. Red Ash, No. 2,	. . . .	45,800	10,400	11,600	7,200	2,000	. . . .	. . . .	. . . .	. . . .	31,200	57	59	68	13	. . .	. . .	. . .	. . .	45,700
43. West End,	. . . .	50,000	8,610	10,880	10,070	10,800	6,000	3,600	. . . .	. . . .	49,990	15	39	36	32	18	20	. . .	. . .	51,300
44. Warrior Run,	. . . .	53,500	9,100	8,200	8,600	7,000	8,100	. . . .	. . . .	. . . .	41,000	30	22	11	16	24	. . .	. . .	. . .	51,000

*Old workings. †Stable. ‡Locomotive.

TABLE VIII.—*Showing location of collieries in the Third District Anthracite Coal Fields.*

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Post-Office Address.
Diamond,	Lehigh and Wilkes-Barre Coal Company,	Wilkes-Barre, Luzerne county,	T. H. Phillips,	Wilkes-Barre, Pa.
Hollenback,	do. do.	do. do.	do.	do. do.
Empire,	do. do	do. do.	do.	do. do.
Jersey,	do. do.	Ashley, Luzerne county,	do.	do. do.
Stanton,	do. do.	Wilkes-Barre, Luzerne county,	do.	do. do.
Sugar Notch Shaft,	do. do.	Sugar Notch, Luzerne county,	do.	do. do.
Sugar Notch Slope,	do. do.	do. do.	do.	do. do.
Lance, No. 11,	do. do.	Plymouth, Luzerne county,	do.	do. do.
Nottingham,	do. do.	do. do.	do.	do. do.
Reynolds,	do. do.	do. do.	do.	do do.
Wanamie,	do. do.	Wanamie, Luzerne county,	do.	do. do.
South Wilkes-Barre,	do. do.	Wilkes-Barre, Luzerne county,	do.	do. do.
Baltimore Slope,	Delaware and Hudson Canal Company,	Wilkes-Barre twp., Luzerne co.	A. H. Vandling,	Providence, Scranton.
Baltimore Tunnel,	do. do.	Wilkes-Barre, Luzerne county,	do.	do. do.
Conyngham,	do. do.	do. do.	do.	do. do.
Boston Mine,	do. do.	Plymouth twp., Luzerne co.,	do.	do. do.
No. 2, Plymouth,	do. do.	Plymouth, Luzerne county,	do.	do. do.
No. 3, Plymouth,	do. do.	do. do.	do.	do. do.
No. 4. Plymouth,	do. do.	do. do.	do.	do. do.
No. 5, Plymouth,	do. do.	do. do.	do.	do. do.
Red Ash Shafts,	do. do.	Wilkes-Barre twp., Luzerne co.	do.	do. do.
No. 4 Tunnel,	Susquehanna Coal Company,	Nanticoke, Luzerne county,	J. A. Stearns,	Wilkes-Barre, Pa.
No. 1 Slope,	do. do.	do. do.	do.	do. do.
No. 2 Slope,	do. do.	do. do.	do.	do. do.
No. 3 Slope,	do. do.	West Nanticoke, Luzerne co.,	do.	do. do.
No. 4 Slope,	do. do.	Nanticoke, Luzerne county,	do.	do. do.
No. 1 Shaft,	do. do.	do. do.	do.	do. do.
No. 2 Shaft,	do. do.	do. do.	do.	do. do.
Newport Shaft,	do. do.	Morgantown, Luzerne county,	do.	do. do.
Newport Slope,	do. do.	do. do.	do.	do. do.
Newport Tunnel,	do. do.	do. do.	do.	do. do.
No. 1 Shaft,	Kingston Coal Company,	Kingston, Luzerne county,	Daniel Edwards,	Kingston, Luzerne county.
No. 2 Shaft,	do. do.	do. do.	do.	do. do.
No. 3 Shaft,	do. do.	do. do.	do.	do. do.
No. 4 Shaft,	do. do.	do. do.	do.	do. do.
Alden Shaft,	Alden Coal Company,	Alden, Luzerne county,	K. M. Smith,	Alden, Luzerne county.
Alden Tunnel,	do. do.	do. do.	do.	do. do.
Avondale,	Delaware, Lack. and Western R. R. Co.,	Plymouth twp., Luzerne co.,	W. R. Storrs,	Scranton, Pa.
Woodward, No. 1,	do. do.	do. do.	do.	do.
Woodward, No. 2,	do. do.	do. do.	do.	do.
Chauncey,	T. P. Macfarlane,	do. do.	T. P. Macfarlane,	Kingston, Pa.
Dodson,	Plymouth Coal Company,	Plymouth, Luzerne county,	James B. Davies,	Plymouth, Pa.
Dorrance,	Lehigh Valley Coal Company,	Wilkes-Barre, Luzerne county,	Fred. C. Mercur,	Wilkes-Barre, Pa.
East End.	West End Coal Company,	Mocanaqua, Luzerne county,	John Teasdale,	Shickshinny, Pa.

TABLE VIII.—*Continued.*

NAME OF COLLIERY.	Name of Operator.	Location—County.	Name of Superintendent.	Post-Office Address.
West End,	West End Coal Company,	Mocanaqua, Luzerne county,	John Teasdale,	Shickshinny, Pa.
Franklin Slope,	Franklin Coal Company,	Wilkes-Barre, Luzerne county,	R. R. Morgan,	Wilkes-Barre, Pa.
Brown Slope,	do. do.	do. do.	do.	do. do.
New Slope,	do. do.	do. do.	do.	do. do.
Hillman Vein,	Hillman Vein Coal Company,	do. do.	E. L. Parrish,	do. do.
Maffit Shaft,	Hanover Coal Company,	Sugar Notch, Luzerne county,	J. Roberts, Jr.,	do. do.
Maffit Tunnel,	do. do.	do. do.	do.	do. do.
Parrish Colliery,	Parrish Coal Company,	Plymouth, Luzerne county,	H. H. Ashley,	Plymouth, Pa.
No. 1, Red Ash,	Red Ash Coal Company,	Wilkes-Barre twp., Luzerne co.	M. B. Williams,	Wilkes-Barre, Pa.
No. 2, Red Ash,	do. do.	do. do.	do.	do. do.
Salem,	Salem Coal Company,	Shickshinny, Luzerne county,	Lemuel Smith,	Shickshinny, Pa.
Warrior Run,	A. J. Davies & Co.,	Warrior Run, Luzerne county,	A. J. Davies,	Wilkes-Barre, Pa.

FOURTH DISTRICT,

Comprising Luzerne and Carbon Counties.

Honorable J. SIMPSON AFRICA, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania:*

SIR: In accordance with the requirements of section seven of article two of the act of Assembly entitled "An act to provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania, and for the protection and preservation of property connected therewith," I have the honor of presenting my fifth annual report, which contains several interesting tables and lists of fatal and non-fatal accidents.

It also contains brief notes on the present condition of the mines; the fire at Ebervale; the flooding of Harleigh and Ebervale collieries, with description of general improvements about the collieries, and of fatal and non-fatal accidents during the year 1885.

The total number of accidents was two hundred, a decrease of fifty-seven since 1884, of which forty-two proved fatal. The fatal accidents cause twenty widows and fifty-eight orphans to mourn the loss of their protectors, and these widows and orphans will now be dependent upon the charity-loving public.

The total quantity of coal produced in 1885 was five million five hundred and thirty-five thousand five hundred and forty-three tons, an increase over the previous year of two hundred and eighty-eight thousand three hundred and sixteen tons. The total production includes all the coal shipped to market, the coal sold at the mines, the coal used by the employés, and the coal used for generating steam at all the collieries.

The average number of days worked in this district was two hundred and eight, an increase over 1884 of twenty-four days.

The producing capacity of this district, taking the years 1884 and 1885 as a basis, is about twenty-eight thousand tons per day, and whenever the state of the coal trade warrants it, this district can produce in round numbers about eight million tons of coal per year.

I have, for the fifth time, called the attention of the public to the great

need of a hospital at Hazleton, where the injured from the mines and railroads can be properly treated.

Respectfully submitted,

JAMES E. RODERICK,
Inspector of Mines.

HAZLETON, PA., *March, 1886.*

The Amount of Coal Produced by each Company during the Year 1885.

A. Pardee & Co.,	530,806
Coxe Bros. & Co.,	893,487
Lehigh Coal and Navigation Company,	598,905
Linderman, Skeer & Co.,	440,552
G. B. Markle & Co.,	397,553
Upper Lehigh Coal Company,	373,491
J. Leisenring & Co.,	409,937
J. C. Haydon & Co.,	245,126
Pardee Bros. & Co.,	216,281
G. H. Myers & Co.,	189,193
Miscellaneous companies,	1,240,212
Total production,	5,535,543

Number of Employees, with the Average Number of Tons mined per Employee for 1885.

NAMES OF COMPANIES.	Number of persons employed.	Average number of tons mined per employé.
A. Pardee & Co.,	1,672	317.46
Coxe Bros. & Co.,	2,394	373.22
Lehigh Coal and Navigation Company,	1,681	356.28
Linderman, Skeer & Co.,	1,202	366.51
G. B. Markle & Co.,	870	433.95
Upper Lehigh Coal Company,	585	633.44
J. Leisenring & Co.,	776	528.26
J. C. Haydon & Co.,	573	427.79
Pardee Bros. & Co.,	413	523.68
G. H. Myers & Co.,	417	453.70
Miscellaneous companies,	3,174	390.74
Total and average,	13,734	402.96

Besides the above number of employés producing coal, there were four hundred and eighty-seven persons employed at stripping and other work, making the total number of employés of this district fourteen thousand two hundred and twenty-four.

The Number of Fatal Accidents, and the Amount of Coal Produced per Life Lost, during the Year 1885.

NAME OF COMPANIES.	Number of lives lost.	Coal mined per life lost—tons.
A. Pardee & Co.,	3	176,935
Coxe Bros. & Co.,	9	99,276
Lehigh Coal and Navigation Company,	1	598,905
Linderman Skeer & Co.,	2	220,276
G. B. Markle & Co.,	2	198,776
Upper Lehigh Coal Company,	3	124,497
J. Leisenring & Co.,	5	81,987
J. C. Haydon & Co.,	2	122,563
Pardee Bros. & Co.,	1	216,281
G. H. Myers & Co.,	6	31,532
Miscellaneous companies,	8	155,026
Total and averages,	42	131,798

From the above, it can be seen that the amount of coal produced by each company per life lost varies from 31,532 to 598,905 tons. The first is extremely low average, the other is much above the average amount produced. Therefore, I have compiled a table of comparison for the last five years, which is placed opposite page——, giving the total amount of coal mined by each company, the total number of lives lost, and the amount of coal produced per life lost.

That table gives a fair average, which cannot be done by taking the figures for one year.

Table of Comparison showing the Different Causes of Fatal Accidents in this District, for the years 1881, 1882, 1883, 1884, and 1885.

	1881.	1882.	1883.	1884.	1885.
Explosion of carbureted hydrogen gases,	3	1	.		1
By falls of coal, roof, and sides,	24	24	18	10	19
By cars inside and outside,	11	8	11	17	8
By premature blasts,	1	1	1	3	3
By machinery inside and outside,	4	1	2	2	3
By boiler explosions,	. .	. .	. .	.	3
Miscellaneous inside and outside,	4	5	6	8	5
Total,	47	40	38	40	42

Table of Comparison showing number of Fatal Accidents per thousand persons employed in and about the Mines of this District, for the years 1881, 1882, 1883, 1884, and 1885.

YEAR.	Number of employés.	Number of deaths.	Ratio employed per death.	Number of deaths per thousand.
1881,	11,386	47	242.25	4.127
1882,	12,298	40	307.45	3.252
1883,	13,598	38	357.84	2.794
1884,	14,299	40	357.47	2.797
1885,	14,224	42	338.66	2.952
Averages,	13,159	41.4	320.73	3.184

TABLE No. 1.—Exhibits the number of deaths in the different classes of employees inside and outside of the Mines, and the causes thereof, for the year 1885.

CAUSES OF DEATH INSIDE OF THE MINES.	Miners.	Miners' laborers.	Helpers, boys.	Company laborers.	Mine-bosses.	Drivers.	Total.
Falls of coal, sides and roof,	14	4				1	19
By mine cars,		1	3			3	7
By explosion of carbureted hydrogen gas,	1						1
By premature explosions,	3						3
Miscellaneous,	3			1	1		
Total,	21	5	3	1	1	4	35

Causes of Death Outside of the Mines.	Laborers.	Slate-pickers.	Firemen.	Engineers.	Oilers.	Total.
By breaker machinery,		1		1	1	3
By explosion of boilers,			3			3
Miscellaneous,	1					1
Total,	1	1	3	1	1	7

TABLE No. 2.—Gives the total number of each class of employees, the number of deaths in each class, and the ratio of each class employed per life lost inside and outside of the Mines, for the year 1885.

CLASSES OF EMPLOYEES INSIDE OF THE MINES.	Number of each class employed.	Number of deaths in each class.	Ratio employed per week.
Miners,	3,205	21	152.62
Miners' laborers,	1,859	5	371.8
Helpers, (boys,)	314	3	104.66
Company laborers,	770	1	770
Mine-bosses,	76	1	76
Drivers,	764	4	191
All other employés,	663	. . .	. . .
Total,	7,651	35	218.6
Classes of Employés Outside.			
Laborers,	1,523	1	1,523
Slate-pickers,	2,861	1	2,861
Firemen, (boilers,)	265	3	88.33
Engineers, (breaker,)	60	1	60
Oilers, (breaker,)	70	1	70
All other employés,	1,794	. . . .	. . . . .
Total,	6,086	7	869.43

TABLE No. 3.—Gives the total number of each class of employees, the number of injuries to each class, and the ratio of each class employed per injury inside and outside of the Mines, for the year 1886.

CLASSES OF EMPLOYEES INSIDE OF THE MINES.	Number of each class of employés.	Number of accidents in each class.	Ratio employed per accident.
Miners,	3,205	75	42.73
Miners' laborers.	1,859	25	74.36
Runners and drivers,	764	20	38.2
Door boys and helpers,	314	5	63
All other employés,	1,509	18	83.83
Total,	7,651	143	53.5
Class employed Outside of the Mines.			
Carpenters and blacksmiths,	312	1	312
Slate-pickers,	2,861	5	572.2
All other employés,	3,400	9	377.7
Total,	6,573	15	438.2

TABLE No. 4.—Gives the number of Non-fatal Accidents, the Number of each class, and the causes thereof, during the year 1885.

	Accidents but no bones fractured.	Collar bone fractured.	Jaw bone fractured.	Ribs fractured.	Legs fractured.	Feet fractured.	Arms fractured.	Hands fractured.	Totals.
By falls of coal, roof, and sides,	26	2	1	2	23	4	6	. .	64
By mine cars, inside and outside,	23	4	2	. .	10	3	4	3	49
By explosion of gas,	5	. .	. .	. .	. .	. .	. .	. .	5
By premature blasts,	4	.	. .	. .	. .	. .	1	1	6
By explosion of powder,	3	. .	. .	. .	. .	. .	. .	. .	3
By machinery, inside and outside,	. . .	. .	. .	. .	. .	. .	1	. .	1
Miscellaneous, inside and outside,	15	2	1	1	7	. .	4	. .	30
Total,	76	8	4	3	40	7	16	4	158

The General Condition of the Mines of this District.

At the end of my five years of service as the inspector of this district, I look with pride at its general condition. The ventilation is up to a satisfactory standard, and by a little care on the part of the mine-foremen there is no reason why a single miner in this district should not be supplied with an abundant quantity of air.

There are at present forty-seven breakers or collieries in this district, which are ventilated by fifty-three fans. Of these fifty-three fans, thirty-two have been erected during the last five years. All the mines of this district are supplied with fans, except a few of the old ones, where nothing but robbing pillars is being done. There is not a mine in this Fourth district that is ventilated by a furnace, as indeed while they were so ventilated very poor results were obtained, as the basins are generally too shallow for that kind of ventilation. The new mine law requires that at least two hundred cubic feet of air per minute shall be furnished to each and every person employed, and that such ventilation shall be conducted to the face of each working-place to dilute and render harmless all noxious and explosive gases. The ventilating fans of this district can nearly double the minimum quantity required by the mine law, and every foreman will be held responsible for neglect in seeing that every person has been provided the necessary ventilation. The coal companies have furnished enough power for adequate ventilation, and the man who toils in the bowels of the earth should be abundantly supplied inside as well as outside, or he cannot do his work with comfort or ease. Drainage is another provision of the new mine law, and any foreman neglecting drainage will be as guilty as the foreman who neglects ventilation, but the consequence of such neglect is not so alarming. I can cheerfully say that the drainage of this district has been greatly improved during the last year, and I expect to see further improvements during the coming year.

TABLE *giving the number, diameter, and width of fans erected in this district during the years 1881, 1882, 1883, 1884, and 1885.*

	Number of fans.	Diameter of each fan.	Width of each fan.	Year erected.	Remarks.
No. 3, Lehigh Coal and Navigation Co.,	1	21	7′	1884	
No. 5, Lehigh Coal and Navigation Co.,	1	12	3′	1883	
No. 6, Lehigh Coal and Navigation Co.,	1	21	7′	1885	
No. 9, Lehigh Coal and Navigation Co.,	1	16	3′	1885	
No. 9, Lehigh Coal and Navigation Co.,	1	12	3′	1882	
Lehigh Coal and Navigation Co.,	1	21	7′	1883	
No. 1, Linderman, Skeer & Co.,	1	15	5′	1881	
No. 2, Linderman, Skeer & Co.,	1	15	5′	1883	
No. 3, Linderman, Skeer & Co.,	1	15	5′	1884	
Humboldt, Linderman, Skeer & Co.,	1	15	5′	1885	
Hazleton Mine, A. Pardee & Co.,	1	20	6′	1883	
Laurel Hill, A. Pardee & Co.,	1	6	1′ 6″	1882	Murphy.
Cranberry, A. Pardee & Co.,	1	16	5′	1883	
Beaver Meadow, Coxe Bros. & Co.,	1	16	4′ 6″	1885	
Gowen, Coxe Bros. & Co.,	1	16	4′ 6″	1882	
Mt. Pleasant, No. 2,	1	16	4′ 6″	1882	
Mt. Pleasant, No. 4,	1	16	4′ 6″	1883	
Eckley, No. 2, John Leisenring & Co.,	1	6	2′	1882	
Eckley, No. 5, John Leisenring & Co.,	1	16	4′ 6″	1882	
Coleraine, No. 1, Wm. T. Carter & Co.,	1	16	4′	1883	
Coleraine, No. 2, Wm. T. Carter & Co.,	1	6	2′	1885	Murphy.
Tresckow, No. 7, Lehigh and Wilkes-Barre Coal Co.,	1	16	4′ 3″	1882	
Tresckow, No. 9, Lehigh and Wilkes-Barre Coal Co.,	1	12	3′ 6″	1884	
Upper Lehigh, No. 5, Upper Lehigh Coal Company,	1	6	1′ 6″	1883	Murphy.
Upper Lehigh, No. 6, Upper Lehigh Coal Company,	1	8	3′	1884	Blackman.
Sandy Run, M. S. Kemmerer & Co.,	1	16	5′	1881	
Jeansville, J. C. Haydon & Co.,	1	16	4′	1882	
Latimer, No. 3,	1	16	4′ 6″	1883	
Beaver Brook, C. M. Dodson & Co.,	1	16	5	1883	
Oakdale, No. 1, G. B. Markle & Co.,	1	16	4′ 9″	1883	
Yorktown, No. 6, G. H. Myers & Co.,	1	8	3′	1884	
Harleigh, Kemmerer & Co.,	1	11	4′ 6″	1885	
Total,	32				
Number of fans previously erected,	21				
Total number of fans in this district,	53				

Prior to the year 1876, only two fans had been erected, one at Upper Lehigh and one at Nesquehoning. All the fans, except the above-named fans, are somewhat after the Guibal pattern, and the majority are giving good results.

The Ebervale Mine Fire.

It is not an infrequent occurrence to hear of a mine on fire; some are of a trivial character, while others are of a very serious and dangerous nature, both to persons and property. A great deal of money is spent, and many precious lives have been sacrificed in combating these mine fires.

On the 3d day of February, 1885, at about six o'clock in the evening, a

very damaging and most unexpected fire broke out in the No. 2 slope operated by the Ebervale Coal Company. The men quit work at five o'clock, and in one short hour the whole slope was ablaze. So sudden was the fire, and so swift its course, that scarcely any time was given to check its headway before it was at the mouth of the slope, extending up the plane and igniting the breaker. The fire was manfully fought, and was extinguished on the surface before much damage was done.

The cause of the fire is not positively known, but it is supposed to have been the remains of an old lamp wick being thrown away by some reckless person among some combustible material, while putting a new wick in his lamp, as there was no fire anywhere in the mines, except in the mine locomotive, which was one hundred and fifty yards away from where the fire commenced. To confirm this conclusion, it is said that a man was seen putting a wick in his lamp, where the fire took place, at the time the last car of men was about being hoisted.

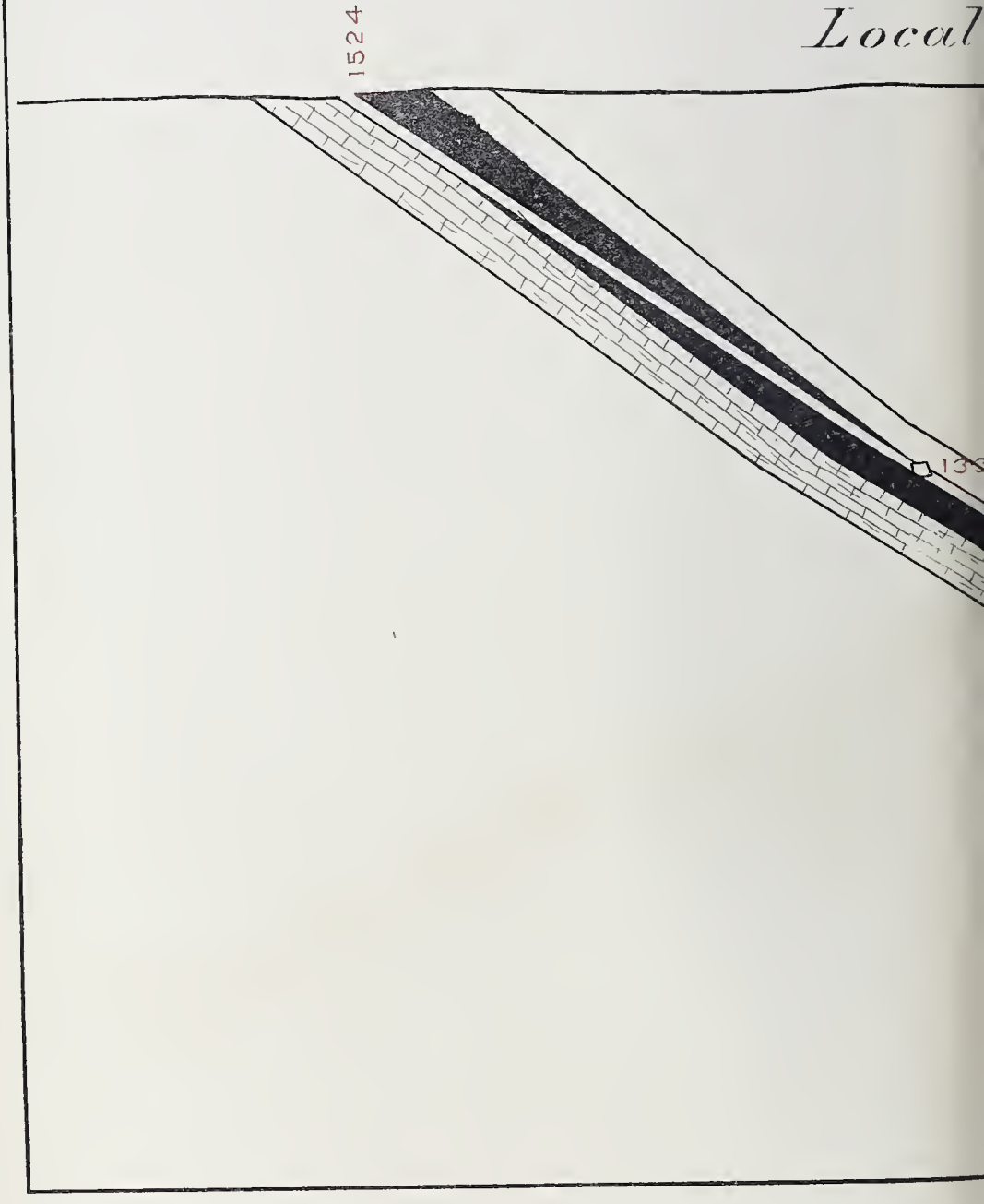
This information leaked out after the fire was extinguished, which goes to show how secretly these mysterious happenings can be kept from being made public.

The No. 2 slope was sunk on the south dip of the Mammoth vein, a distance of eight hundred and twenty feet to the basin, and consisted of three lifts, the first and the bottom lifts having been worked out. The second lift, where the fire commenced, was six hundred and ninety feet from the surface, and the first lift three hundred and forty-five feet, dipping at an angle varying from 30° to 40°. The slope was very thickly timbered from the mouth to the bottom. It consisted of two tracks, a steam and a pumpway. Owing to the heat generated by the steam pipes, which were well covered, the timbers were very dry and easily ignitable, and, assisted by the heavy draught of air in the slope, due to the heat, caused the fire to burn with fierceness and rapidity, so that in half an hour's time it had reached the mouth of the slope. So terrific and intense was the fire by this time that it could be compared to nothing else than a volcano. It continued to burn unabated until the slope caved in, which broke the steam pipes, causing the air-current to reverse, which undoubtedly was the means of saving the breaker. Now that the course of the air was changed, and the slope on fire being the downcast, the noxious gases produced by the fire caused the men to leave the mines as speedily as possible, but many were overcome and had to be carried out. During this time, the steam from twenty boilers was injected into the mines. Afterward, the steam was shut off as it did no good; then the air took its natural course, enabling the men to reënter the mines through the adjoining slope, and follow up the fire, bratticing off the air at all available points. In the meanwhile, other men were busily engaged connecting various lines of gas pipe and hose to the pumps in slope No. 1, and extending them to the different places to play on the fire. While this was going on, or a little while previous, the Hazle-

Slope No 2

Cross Sect

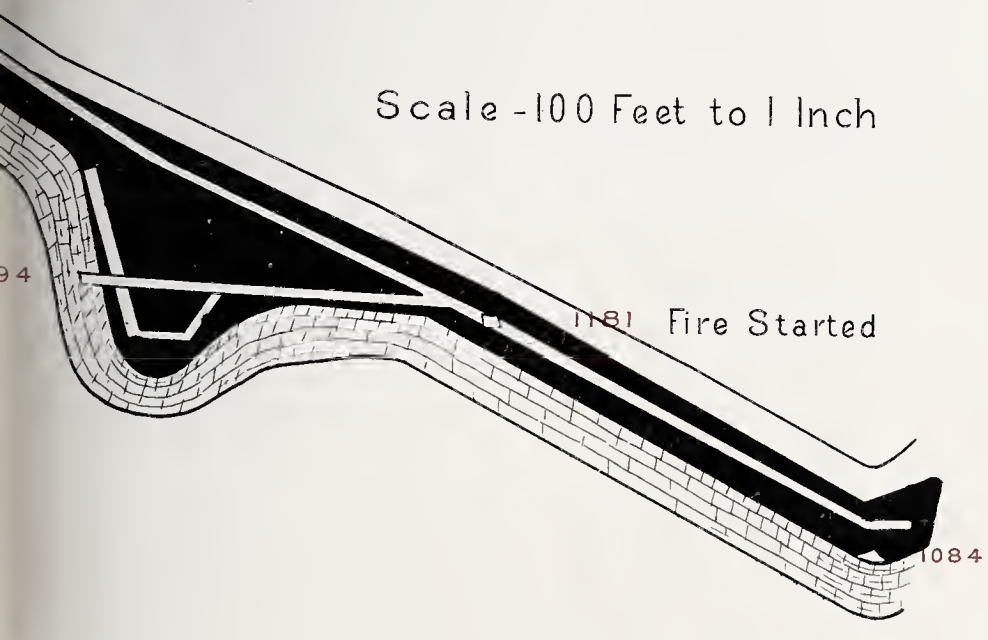
Local



BERVALE.

Showing

sin.



ton fire company had extended their hose to the connection on the pumps, and did some excellent service in fighting back the fire on the second lift, between Nos. 1 and 2 slopes, but finding it to be a long and tedious job, they got tired and went home, leaving their hose for our use.

At this juncture, Mr. James E. Roderick, inspector of mines; Mr. Thomas Griffiths, mine-boss at Harleigh colliery; and T. D. Jones, superintendent, held a consultation, and decided upon the plan of fighting the fire by extending the long lines of pipes in various directions, and extinguishing it by water. There were nine thousand feet of $1\frac{1}{2}''$, $2''$, $2\frac{1}{2}''$, and $3''$ gas pipe, and five thousand feet of $2''$ and $2\frac{1}{2}''$ gum hose, used in forming nine main lines from the pump to the site of the fire; invariably two lines were formed, or extended from each of the nine lines directly on the fire.

After the fire was fought back to the slope from the gangways and tunnels, it was followed and extinguished up the slope on top of the fallen *débris*. As before stated, the slope was not entirely closed, a space of about four feet being left, through which we climbed up on top of the fallen stuff, advancing slowly and carefully, extinguishing the fire and timbering as we advanced. To afford protection to the men, a manway was carried up the slope, alongside of the slope pillar, but was discontinued after the fire was extinguished, nearly up to the first lift. A great deal of the trouble and annoyance experienced in putting the fire out, as we advanced on top of the *débris*, was owing to the water not penetrating through the fallen stuff to the fire; consequently, as we would advance, probably fifty feet, the fire would again break out in the rear, and the gas would explode with the roar of a cannon, causing the men to retreat greatly frightened. However, this was partially overcome by keeping some of the hose in advance, whilst others followed up in the rear, with a sufficient amount of water to extinguish the fire that was underneath the mass of fallen coal. At many places we had to drill holes through the fallen *débris*, and drill man-holes along the pillar to reach the bottom slate, in order to get at the fire that the water would not otherwise reach, as it ran over the stuff like the water off a duck's back.

The hardest part of the fighting came when we reached the first lift, as the fire had spread east and west at that point, and the old gangways were all down. How to reach the fire on the east of the first lift of the slope was a mooted question, as the gangway was closed and there was no way of getting back of the fire to prevent it from extending westward. At last we decided to work our way up an abandoned breast, from the second lift, which pitched about 65°, making it very difficult to climb up, owing to the manway props being rotten. After reaching the face, a hole was driven through the pillar to the outside breast, from which a hole was driven to the first lift gangway, at a point about one hundred and twenty feet west of the place to which the fire had extended. To re-open this distance to the site of the fire, all the lumber needed to timber this piece of ground

had to be carried up the breast, which was very laborious and dangerous work.

After working our way a short distance from the hole driven up from the face of the breast over the fallen *débris*, the mine inspector detected a large body of explosive gas within fifteen feet of the fire. The question then arose how to get rid of the gas. It was finally decided to drive holes from the slope through the pillar into the breast, east of and next from the slope. In doing this, the men had to work in the midst of the fire burning in the slope. A hole, eight yards long, had to be driven and timbered in this manner, where a man could stand no longer than three minutes at a time; however, it was accomplished and ventilation produced.

In causing the ventilation, it was feared that it would cause the gas to come in contact with the fire and ignite, in the event of which it would cause destruction of life and property. In the meantime, fortunately, the gas had become diluted, and no explosion took place.

The fighting then became general. From the east and west of the slope, every inch was obstinately fought, and in course of several weeks, after driving cross-cuts and recross-cuts, as it were, on top of the fire, with four lines of hose, with a pressure of two hundred feet head playing on it, the fire was extinguished.

While fighting the fire on the west side, it was discovered that it had extended to the east of the slope, through a cross-cut into a breast, which was put out after a week's hard fighting. While all this was going on, twenty-four men were busily engaged in timbering the mouth of the slope in the face of the noxious gases and heat emitted from the fire, to prevent the mouth of the slope from caving in, for had we not been successful in keeping the mouth of the slope open, all the work that we had accomplished would have been futile, as the men fighting the fire in the slope would have been overcome by gas. To give a minute account of the "ins and outs" of all that transpired during a period of about two and a half months of fighting the fire would fill a volume of many pages; suffice it to say, that it was one of the most desperate mine fires ever fought successfully in the anthracite region.

The cost of putting out the fire was about forty thousand dollars, not including the repairs necessary to re-open the slope afterward.

Accompanying this report, is a map of the slope on fire, giving the outline of the manner in which the pipes and hose were conducted from the pumps in the adjoining slope to the fire, and the way by which all the material had to be carried through small holes, cut out by the men, through fallen top rock and shale. At "A," on map, was a large Allison pump, to which a line of pipe was laid up the slope, thence through the second lift gangway "F" to the fire at the tinted portion shown on the map, where two lines were formed from the one. Two more lines of $2\frac{1}{2}$-inch hose were conveyed from the two Duplex pumps at "D" and "E," and along the

EBERVALE - SLOPE No 2

Showing Location & Extent of Fire

Reference

Green Line - Gas Pipe & Hose

□ Pumps

Tinted Portion - Extent of Fire

Broken Lines - Holes Drawn to Light Fire

first lift gangway to the fire. A third line extended from these pumps down the slope and through the local basin gangway, thirty feet under the slope, at "H" to "I," marked on map, and up the breast, previously referred to in this report, to the first lift, to extinguish the fire back and into the slope. At "C" a mine locomotive was stationed to generate steam for a pump, from which two lines of pipe were carried to the foot of the slope where it originated, and at "C" was another 15-inch Duplex pump, and a small Cameron pump, to which was attached a 3-inch column-pipe, extending up the lower lift to the second, to where the fire originated. About four hundred persons were engaged at the fire, consisting of three eight-hour shifts, some playing water on the fire, others timbering, others carrying stuff to supply those working, and in this manner not a moment was lost to impede the progress of fighting the fire. So well was the regularity of the hoisting in the slope systematized that scarcely any time was lost in supplying the wants of the men, and hoisting the machinery of two Duplex pumps, which were taken out as it was deemed advisable to do so. Many men had very narrow escapes, yet there was not a person severely injured, but large numbers were so overcome by the noxious gases that they had to stay home for weeks.

The Flooding of Harleigh and Ebervale Mines.

Since the cave-in of the Harleigh, No. 3, in 1885, the water from that part of the mine has been allowed to run into Ebervale, through a series of bore-holes through the boundary pillar.

About the beginning of February, during the Ebervale mine fire, the superintendent, Mr. Jones, consulted me about plugging these bore-holes, so the Ebervale mines would not get flooded while they were fighting the fire. I authorized Mr. Jones to have the holes plugged, as I thought that the pillar was strong enough to withstand the pressure of the accumulating water for several months.

The fire at the Ebervale mine was all put out about the middle of April. By this time the water had raised vertically about one hundred feet at Harleigh, No. 3. In the beginning of May, I called Mr. Jones' attention to the large amount of water that was pressing against the boundary pillar, which was only about thirty-three feet in width. I requested him to have some of the plugs taken out, so the water could flow to Ebervale as before. Mr. Jones replied that they had all the water they could pump at that time; besides, he did not think it their duty to pump the Harleigh water, as they had done that long enough for glory. After that I called on Mr. Kemmerer, the operator of Harleigh, and requested him to have the water pumped out of the old No. 3; also saying that I did not think he had a right to endanger the lives of the Ebervale employés by allowing such a large body of water to accumulate in his mines. Mr. Kemmerer answered that they were pumping all the water that their mine made above

the level of their present workings, and had done so since he had taken charge of the Harleigh colliery. He fully demonstrated by figures that their pumping capacity was ample to contend with their water during the spring and fall of the year, when they had the most water to contend with.

He also said that he had nothing whatever to do with the old No. 3 water, as that place had caved in before he took the colliery, and as he was working above that level, he did not propose to pump that water.

About the middle of May, a cave-in occurred at Harleigh, which took in a part of the creek bed, allowing a great deal of water to go into Harleigh, No. 2, and from there ran into No. 3, raising the water to about one hundred and thirty feet vertically.

I called Mr. Kemmerer's attention to the necessity of moving the creek from its present location, as I considered it dangerous for his men to work when such a large amount of water was standing above them, which was perilous to all concerned. After several interviews, with no satisfactory results, I wrote to Messrs. Woolston and Ingham, the presidents of both land companies interested, about this large amount of water in the Harleigh mine, which should be pumped out by some party by all means; and also to the great danger from the creek breaking into the Harleigh mine during the wet season. I tried to impress on them that if such accident would occur, both Harleigh and Ebervale would be flooded.

After sending and receiving several letters from these gentlemen, with no satisfactory result, I concluded that the time had come for me to take a decisive step; therefore, I wrote to each of them, on the 3d day of July, that unless some satisfactory arrangement was made before the 11th day of July, I would ask the court for an injunction against working the Harleigh and Ebervale collieries.

On the 10th day of July, I wrote Messrs. Jones and Kemmerer as follows:

HAZLETON, PA., *July 10, 1885.*

T. D. JONES, Esq., *General Superintendent.*

DEAR SIR: After great deliberation, I came to the conclusion to ask you to suspend operation at the Ebervale collieries until the danger from the Harleigh water is removed. * * * *

Yours, very respectfully,

JAMES E. RODERICK,
Inspector of Mines.

HAZLETON, PA., *July 10, 1885.*

M. S. KEMMERER, Esq., *Lessee Harleigh Colliery.*

DEAR SIR: After great deliberation and a thorough investigation, I came to the conclusion to ask you to suspend operation at the Harleigh colliery. * * * * The danger I refer to is from the caving-in of a por-

tion of the roof, through which the creek will run in and endanger the lives of your employés. * * * *

Yours, very respectfully, James E. Roderick,
Inspector of Mines.

Messrs. Kemmerer and Jones complied with my request at once, saving the trouble of applying to the court for an injunction.

The stopping of these mines brought both coal companies and land-owners to terms. The Ebervale Coal Company agreed to take out some of the plugs, and pump the water from old No. 3. Kemmerer & Co. agreed to put a pump down in No. 3, to pump out a part of the water that usually found its way to Ebervale. The land-owners agreed to open a new channel for the creek, south of the outcrop of the Wharton. By this wise move of the land-owners, the lessee could mine a large amount of coal which was left in to support the roof under the bed of the creek.

After this general settlement, Ebervale and Harleigh were allowed to resume operations. T. S. McNair, Esq., made the necessary surveys for the new channel in the latter part of July, and accepted bids for the work from several parties. The contract was awarded to J. W. Crellin, of this borough, about the latter part of September, some two months after the necessary surveys were made, with the proviso that the work should be completed by the first day of December.

He started the work at once with a large force of men. Owing to the wet weather setting in, and a great scarcity of labor for a part of the time, the work was greatly delayed. But, after a great effort, Mr. Crellin failed to complete the work as per agreement.

The new channel was to be three thousand four hundred and seventy-five feet in length, sixteen feet wide at the bottom, with a side gradient of one and one half feet to one. The depth ranged from three to eighteen feet. There were about forty thousand cubic yards of ground removed in opening this channel. Had the contract been awarded in the early part of August as expected, the work would have been accomplished in much less time, as the bulk of the work could be finished before the fall rain came. This new channel was worked from several points, and was completed, except one block of two hundred feet in length, on the 8th day of December. On the 9th day of December, this region was visited by a heavy rain storm, and it kept up during the night of the 9th, which caused Black creek to rise rapidly and to overflow its banks.

About four o'clock on the morning of the 10th, the water found its way into the Harleigh mine through an old coop hole. Between six and seven o'clock the mine foreman of the Harleigh mine discovered that the creek was running into the mine. He at once organized a large force of men to endeavor to stop it by throwing logs, stumps, bales of hay, and everything movable that they could get hold of, but it was of no avail, as the large opening was carrying everything into the dark regions below.

By ten o'clock, this large volume of water had made a new channel about thirty feet deep and about one hundred feet in width. After failing in their effort, it was decided that there was only one thing to be done, and that was to open a narrow channel through the barrier, and turn the creek into the new channel. Hundreds of men were put to work, but they could not make much progress, as the ground was frozen to a depth of about two and one half feet. While these men were engaged in opening this channel, another party was building a dam to turn the water into it. By the following night the channel was partly opened, and the dam was finished, but before the water had risen high enough so it could run into the new channel the dam broke away allowing the creek to run into the mine as before.

The next morning another dam of larger proportions was started, and finished in about thirty-six hours. During the building of this dam, the new channel was again widened and deepened, being made six feet wide at the bottom.

The chute in the dam was closed, and the water filled and ran into the new channel; everything was working successfully, the water going through the narrow cut with ease, but running very swiftly.

A large force of men was kept widening the channel this Saturday night, and everything was looking favorable to the completion of the channel before another rain-storm came. Early Sunday morning a heavy fall of snow took place, which changed into rain about ten o'clock. The rain fell in torrents all day, and by night the creek was much higher than at the previous time. The narrow channel of six feet wide could not take the water fast enough, consequently it backed all over the flats toward Ebervale. Eventually a cave-in of the bank, which was about eighteen feet high, occurred in this narrow place, completely blocking back the water, and the pressure from this back water became so great that it broke through the bank south of the old bed of the creek, and also south of the new dam, taking everything before it into the mine breach. Nothing more could be done this Sunday night, as the rain was still coming down in torrents.

On the Monday morning, which was a bright, clear day, land-owners, operators, superintendents, and engineers came there for consultation, and came to the conclusion that it would be useless to dam the water again until the channel was completed.

A larger force of men was put on, and for the next five days and nights a force of about five hundred men was engaged at widening and deepening the channel and building dams.

After great efforts, the channel and dams were completed by Friday afternoon, and the water turned into its new course.

By this time the water had filled Harleigh, No. 3, and was running into Ebervale through an old gangway that was foolishly connected years gone by, filling that mine for one hundred and fifty feet vertically. It was esti-

mated that about two billion gallons of water had found its way into the Ebervale mines during the nine days the creek ran in.

The mines could have been cleared of this water in six or seven months, but while the land companies and the coal companies were discussing who should bear the expense of this pumping, the greatest rain storm of twenty years passed over this region. On the 4th day of January, the rain came down in sheets, and by Monday night the Black creek was overflowing its banks again in several places east and west of the new channel. The back water west of the channel found its way back through the old channel bed into the same breach hole, again filling both mines rapidly, and before a dam was built there the pumps of the Ebervale mine on the second lift were covered. These pumps had a capacity of about eight thousand gallons per minute, and it can be seen at a glance that to throw out the water from the Harleigh and Ebervale mines means the expenditure of large sums of money.

The drowning out of these mines is the greatest loss that this region ever experienced, and is especially hard on the Ebervale Coal Company, who had spent about fifty thousand dollars in putting out the mine fire in February, March, and April of the same year.

Since then no work has been done at Ebervale except the taking out of rails, column pipes, steam pipes, &c., which could be reached above the water. The indications are that no work will be done at Ebervale for years, and very little can be done at Harleigh.

This should be a lesson that land-owners and operators would long remember, as indeed it has been an expensive lesson to them. The Ebervale employés have failed to get employment elsewhere this winter, and if it was not for the charity among the employés of this district, they would have suffered the pangs of hunger.

A Miners' Hospital.

In my reports of past years I have frequently called attention to the urgent necessity for a miners' hospital in Hazleton. Notwithstanding my earnest efforts to interest the authorities and the general public in this important matter, but little attention has been paid to it. The press of Hazleton, which, as the guardian of the public interest here, should be instrumental in seconding a proposition as humane as this one, has only advocated the plan in a spasmodic way. I consider our local journalists have been extremely derelict in neglecting this obvious public duty. If the power of the press cannot be invoked successfully in aid of a movement so philanthropic in its nature, and so beneficial to the army of workingmen in my inspection district, I fear it can never be induced to an active support of any measure advanced for the interest of the laboring classes.

In conjunction with the press, the Hazleton public, and even the miners and other mine employés, have scarcely interested themselves in this matter, notwithstanding the fact that such a hospital, if erected here, would be of

wide practical benefit to all persons. I am the more surprised at this noticeable apathy when I reflect that every adult in my inspection district recognizes the extreme necessity which demands such an institution in Hazleton or vicinity.

I have taxed my energies to the utmost to excite a wide public support for this proposed hospital, and I regret that the subject has not received the considerate attention it deserves. Nevertheless, notwithstanding my past failures, I refer to the matter again, trusting that the State authorities, as well as the Hazleton press and general public, may be induced to give the movement a strong financial support.

Hazleton is in need of the spirit which prompted the erection of the hospital at Drifton. The employés of that place know nothing of the hardships due to lack of proper hospital facilities, for within sight of the collieries stands an institution of the kind wanted in Hazleton, a miners' hospital, provided with all the facilities necessary to a speedy alleviation of the bitter agony frequently experienced by injured mine employés.

Some idea of the value of this hospital may be gotten from the report sent me, on my request, for the year 1885:

DRIFTON, PA., *January 25, 1886.*

Messrs. COXE BROS. & Co.,

GENTLEMEN: Herewith I submit my third annual report, showing number of patients admitted, discharged, or died; number of days' board furnished, and other information in regard to Drifton hospital during the year ending December 31, 1885:

Number of patients in hospital January 1, 1886,	6
Admitted during the year,	57
Total treated during the year,	63
Single,	33
Married,	22
Widowed,	2
Total,	57
Employés of Coxe Bros. & Co.,	40
Outsiders,	17
Total,	57
Discharged, cured,	43
Discharged, improved,	1
Discharged, unimproved,	1
Died,	11
Remaining December 31, 1885,	7
Total,	63

Number of days' board furnished to the sixty-three patients during the year,	2, 717
Number whose board was charged to accident fund,	32
Number who paid their own board,	25
Total,	57

Average time the fifty-six discharged and died were in the hospital, $52\frac{1}{4}$ days.

Of the eleven who died, one lived seven hundred and eighty-nine days after admission; one lived nineteen days; one lived seventeen days; one lived ten days; one lived six days; the other six died within forty-eight hours after admission.

Nativity of the Fity-Seven Patients Admitted.

Hungary,	14
Pennsylvania,	11
Ireland,	8
Austria,	6
England,	4
Wales,	3
Italy,	3
Poland,	3
Germany,	2
Denmark,	1
Scotland,	1
Russia,	1
Total,	57

Residence of the Fifty-Seven Patients Admitted during the Year at Time of their Admission.

Drifton,	14
Beaver Meadow,	8
Latimer,	7
Freeland,	5
Tomhicken,	5
Derringer,	4
Hazleton,	2
Ebervale,	2
Butler Valley,	1
Gowen,	1
Stockton,	1
Harliegh,	1
Jeanesville,	1

Jeddo,	1
Woodside,	1
Oakdale,	1
Buck Mountain,	1
Mount Pleasant,	1
Total,	57

Total number admitted to the hospital since it opened September 1, 1882, 211.

Respectfully submitted.

(Signed,) H. D. MILLER,
Superintendent.

DIAGRAM SHOWING

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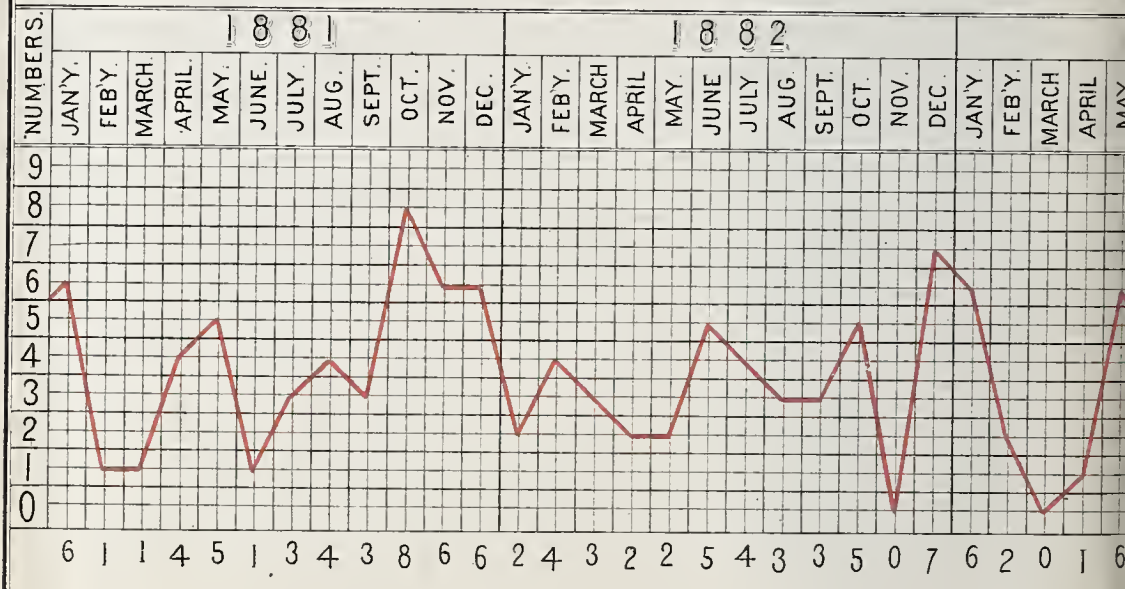

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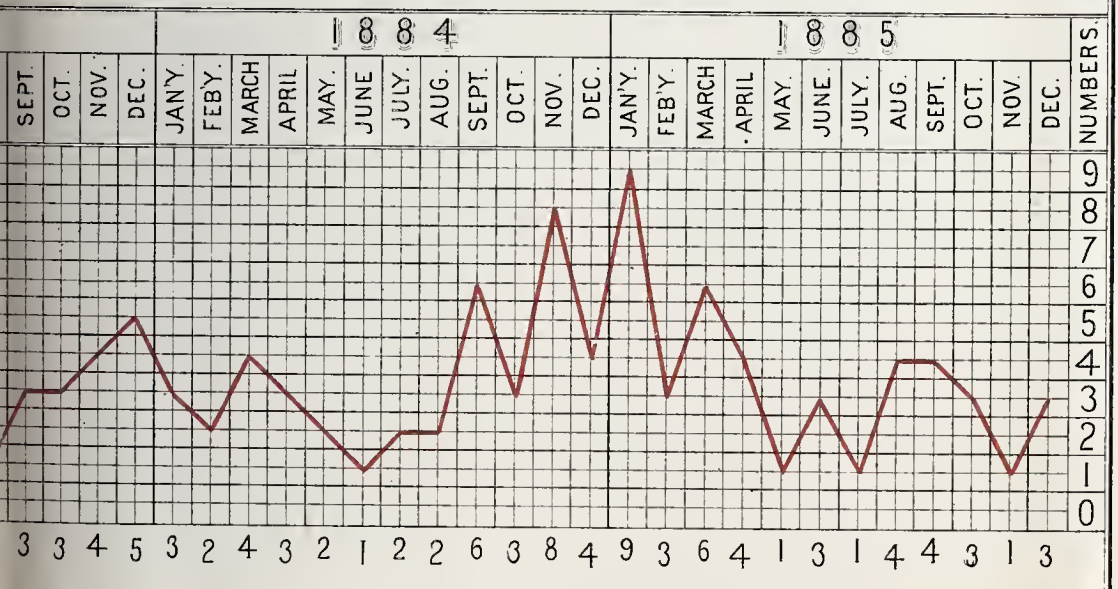


TABLE OF COMPARISON, *showing the yearly and total production of each company for the last five years, the number of lives lost, and the average amount of coal produced by each company per life lost.*

Production.	1881.	1882.	1883.	1884.	1885.	Total production.	Lives lost.	Tons per life lost
A. Pardee & Co.,	686,432	673,627	659,151	543,164	530,806	3,093,280	25	123,731
Coxe Bros. & Co.,	534,764	547,529	643,034	805,538	893,487	3,424,352	27	126,828
Lehigh Coal and Navigation Company,	414,398	419,189	474,175	533,956	598,905	2,440,623	22	110,937
Linderman, Skeer & Co.,	324,250	429,577	518,308	426,582	440,552	2,140,754	18	118,931
G. B. Markle & Co.,	413,820	472,635	499,068	358,197	397,553	2,141,273	15	142,751
Upper Lehigh Coal Company,	387,842	365,180	390,069	360,166	373,491	1,876,648	11	174,604
J. Leisenring & Co.,	254,551	337,427	399,433	355,141	409,937	1,756,489	14	125,463
J. C. Haydon & Co.,	215,100	242,379	248,904	215,249	245,126	1,166,758	6	194,459
Pardee Bros. & Co., Lattimer,	254,754	239,032	212,151	235,785	216,281	1,158,003	6	193,000
Ebervale Coal Company,	198,825	257,383	226,365	173,907	150,559	1,007,039	10	100,704
G. H. Myers & Co.,	178,679	185,074	198,176	191,682	189,193	942,804	13	72,523
M. S. Kemmerer & Co., Sandy Run,	136,085	181,759	188,418	147,174	158,720	812,156	2	406,078
Pardee Sons & Co., Mt. Pleasant,	146,691	143,373	190,837	139,139	146,229	766,269	10	76,626
William T. Carter & Co., Coleraine,	138,187	153,360	169,469	169,950	128,552	759,518	5	151,903
Lehigh and Wilkes-Barre Coal Company,	116,561	135,605	148,402	132,784	107,657	641,009	8	80,126
C. M. Dodson & Co, Beaver Brook,	98,028	99,367	82,250	138,162	159,115	576,922	1	576,922
C. Pardee & Co., Hollywood,	125,141	125,841	149,437	100,410	94,249	595,076	6	99,179
Stout Coal Company, Milnesville,	142,405	120,793	93,582	79,902	101,951	538,683	2	269,341
Buck Mountain Coal Company,	120,719	108,906	75,152			304,777		
Kemmerer & Co., Harleigh,	94,755	88,667	66,801	96,302	86,603	433,128	5	86,625
M. S. Kemmerer & Co., Pond Creek,	32,822		39,486	50,750	45,494	168,552	1	168,552
J. S. Wentz & Co., Black Ridge,	21,754	63,694	4,072		10,966	100,486		
J. S. Wentz & Co., Hazle Brook,				20,295	50,081	70,376		
Total production,	5,037,948	5,360,497	5,666,767	5,274,227	5,535,543	26,874,982	207	129,830
Average number of days worked,	225	221	221.9	184.5	208.6			

BENEFICIAL FUND.

Second Annual Statement of the Lansford Organization.

Below will be found the second annual statement of the Lansford Beneficial Fund, supported by the Lehigh Coal and Navigation Company and its employés, for the year 1885. A glance at the figures will show what benefit the employés derive from it:

MONTHS—1885.	CONTRIBUTIONS.		Total contributions.	Benefits paid.	Expenses.	Total benefits and expenses.	Cash balance.
	Employees.	Company.					
Balance Dec. 31, 1884,							$7,941 92
January,	$814 66	$742 48	$1,557 13	$1,315 74	$40 81	$1,356 55	8,142 50
February,	614 71	657 45	1,272 16	1,433 13	40 00	1,473 13	7,941 53
March,	583 26	583 73	1,166 99	1,603 08	45 19	1,648 27	7,460 25
April,	602 02	656 67	1,258 69	1,158 03	46 00	1,204 03	7,514 91
May,	752 01	884 65	1,636 66	1,149 33	49 47	1,198 80	7,952 77
June,	801 36	923 96	1,725 32	1,182 11	41 43	1,223 54	8,454 55
July,	785 66	881 02	1,666 68	1,101 64	40 00	1,141 64	6,979 59
August,	884 21	1,098 17	1,982 38	1,159 68	54 25	1,213 93	9,748 04
September,	888 03	1,127 74	2,015 77	1,598 39	41 68	1,640 07	10,123 74
October,	925 78	1,245 69	2,171 47	1,416 58	44 00	1,460 58	10,834 63
November,	951 02	1,195 50	2,146 52	1,304 02	43 19	1,347 21	11,633 94
December,	853 66	1,017 97	1,871 63	1,367 05	40 00	1,407 05	12,098 52
	$9,456 37	$11,015 03	$20,471 40	$15,788 73	$526 02	$16,314 80	$12,098 52
Interest to Dec. 31, 1885,							376 56
Balance on Dec. 31, 1885,							$12,475 08

The fund is maintained by a contribution by the company of one cent per ton on the whole production of its coal mines, and a monthly contribution of one per cent. of the earnings of all inside men and one half per cent. of the earnings of all outside men.

In case of accident, it pays monthly half the average earnings of employés; in case of fatal accidents, half of the average earnings is paid to the nearest relative of the deceased, in addition to thirty dollars for funeral expenses.

It can be seen by this statement that the company, during the year 1885, contributed over fifteen hundred dollars more than the employés toward this fund. During 1884 and 1885, the company's contributions exceeded those of their employés by over twenty-five hundred dollars.

This company is entitled to great credit for their generosity toward their employés who are victims of the numerous accidents in and about the coal mines.

The amount paid in benefits during the years 1884 and 1885 was twenty-five thousand and fifty-five dollars, leaving a balance in the treasury, December 31, 1885, of twelve thousand four hundred and seventy-five dollars.

The amount paid to the sufferers from accidents during the two years equals the earnings of forty-two men for one year at fifty dollars per month, or six hundred dollars per year.

By looking at the figures in this light, one can see the great amount of good done by this beneficial fund, operating only under one company, who

only produce about one thirtieth of the total amount of anthracite coal mined. If this system, or a similar one, were adopted by the coal companies and their employés, each party paying on this basis, the magnificent sum of over three hundred and seventy-five dollars per year could be distributed among the suffering classes about our coal mines, and also leave a yearly surplus of about one hundred and ninety thousand dollars.

The new anthracite mine law went into effect the first day of July, 1885, and has, on the whole, operated very smoothly. Yet there are a great many points that have not been enforced or complied with thus far, but I expect that by the first day of July, 1886, the provisions of the new law in general will be carried out by the several companies.

The only real stumbling-block thus far in this district is the prop section, which, in effect, says that the companies shall deliver props and timbers to, or as near as practicable to, the face of each working-place *free of charge.*

If our wise legislators had not added the words "free of charge" to this section, the companies would not have objected. It is very doubtful whether any Legislature has a right to say what charges a company can make, and what charges they cannot make.

In my opinion, the prop law, as it is generally called, is as essential as other parts of the law, as it has a tendency to reduce accidents from falls; and, as about fifty per cent., at least, of all the accidents are from falls, any part of a law that has a tendency to lessen them is of great value.

A large number of companies in this district are sending in the timbers as required by law; others are shielding themselves behind the technicality that the miners have not requested them individually to send in their props, also giving length, number, and size of the desired props. I think this is a poor excuse, as the meaning of the law undoubtedly is that all companies and parties interested shall live up to its spirit

Yet I don't think this part of the law can be enforced until the men individually make a formal request, stating the number, size, and lengths of props needed. If the employés would do this, I don't think that there is a company in this district that would refuse.

The cost of cutting and loading these props would only be a small fraction additional to the cost per ton, and the companies are only fighting it because the law says they must do a thing that they think unconstitutional.

Thus far the men are very backward in complying with the parts of the law that have a direct bearing on themselves. There are a large number of provisions in it that they have ignored thus far. The attention of a large number of them has been called to the several provisions, but so far with very little effect.

A Statement of the Amount and Cost of Lumber used at some of the Mines.

The amount of props and timber used in and about the anthracite coal mines is enormous, and to get at the accurate account of the quantity used and the cost thereof, I made inquiries of several superintendents of this district, and in response a few of them sent me the actual statements from their books.

Mr. C. Pardee, superintendent for Pardee, Sons & Co., writes me that during the year 1885, the following amounts of the different kinds of lumber were used at the Mt. Pleasant colliery:

348, 677 feet of prop-timber, calip measure.
66, 674 feet of logs, calip measure.
163, 125 feet hemlock lumber.
13, 375 feet hard wood, car lumber.
3, 020 mine sills, each about six feet long.
13,040 feet 4-4 yellow pine boards.

The whole of the above cost the company on cars at the colliery ten thousand one hundred and ninety-six dollars and fifty-eight cents, which is equal to about 7.8 cents per ton for all the coal sent to market.

Mr. Albert Leisenring, superintendent for the Upper Lehigh Coal Company, informs me that the following amount of lumber was used at No. 4 colliery during the year 1885:

145, 589 feet lineal of props.
228, 159 feet of hemlock lumber.
9,176 feet white pine lumber.
6,772 mine sills, about six feet long.
11, 883 feet hard wood, car lumber,

At a cost to the company delivered on cars at the colliery, of eleven thousand dollars and seventy-nine cents, which is equivalent to about 6.5 cents per ton for marketed coal.

Hon. E. B. Coxe writes that the amount of lumber used at their Nos. 1 and 2 at Drifton, during the year 1885, was—

163, 483 feet lineal of props.
353, 636 feet of lumber.
8, 997 mine sills, each about six feet long.

Not having the complete data, and as most of this lumber was cut on the company's land, I cannot here give the actual cost; therefore, cannot figure the cost per ton.

After reviewing the whole mines of this district, and comparing them with those herein stated, I have come to the conclusion that the cost of lumber on board of cars at the collieries of this district is about seven cents per ton on all the coal sent to market. This does not include the lumber used at new breakers. The amount of lumber given as used is correct, as those companies are complying with the prop section, and are keeping actual account of all the lumber used.

By complying with this part of the law, there is no timber wasted, as is the case when the men cut their own timber.

COLLIERY IMPROVEMENTS DURING 1885.

The improvements made in this district during the last year are not extensive, partly owing to the bad condition of the coal business. Yet the improvements that were made were of substantial character.

Improvements Made by A. Pardee & Co.

In No. 8 slope a plane has been completed, over which the coal is to be lowered from the upper workings, and from the strippings to the level of the slope bottoms. From there the coal will be hoisted and taken to Hazleton mine breaker.

An addition has been built to the boiler-house at this place, and ten new boilers added. At Laurel Hill a slope was sunk through the rock to the Mammoth vein on a lower level. The coal was found in good condition as far as developed.

At Cranberry four additional cylinder boilers 33″×30′ have been put in place, also a set of dirt pockets to hold small coal and dirt that were being washed into the creek.

A new Duplex pump was put in on the fourth lift in Hazleton mine, to throw the water to the surface, equal to 325 feet vertical. The size of the pump is 26″ steam cylinder, 12″ plunger, and 4′ stroke, with a capacity, at ordinary speed, of 1,200 gallons per minute.

Improvements Made at Sandy Run and Pond Creek.

A second lift, with an average pitch of 43°, has been sunk at No. 6 slope, Sandy Run, finding the coal of good quality in the basin. The artesian well has been bored to a depth of 700 feet. The improvements thereat are a lifting or bucket pump, engine, and boiler. It was completed during July, and has proved a great success, supplying the town and boilers with enough pure, fresh water at the driest of seasons.

The improvements at Pond Creek during the year were the completion of Slope No. 2, with hoisting engines, boilers, &c., and the completion of the narrow gauge track for the transportation of the coal from that place to Sandy Run breaker. A 12″ Allison pump has been put in the slope, which will eventually throw the water to the surface through a bore hole. A bore hole for proving the Pond Creek property was put down from the surface over the bottom of Slope No. 2. The drill passed through a five-foot vein of coal, situated 22 feet above the vein now being worked. This hole is being continued deeper. A short tunnel from the old workings cut the new vein in good coal.

Improvements at Harleigh.

The improvement here was a new slope sunk on the Buck Mountain vein, south of the main basin, nearly opposite old No. 2 slope. The slope was put down about 70 yards on an average dip of about 45°. The aver-

age thickness of this vein is from five to six feet. One 11 feet diameter fan, width of blade, 4½ feet, was erected, which, at 60 revolutions per minute, gives about 25,000 cubic feet of air.

Improvements at Jeanesville by J. C. Haydon & Co.

A tunnel was driven from No. 4 basin, south through the anticlinal, into the old No. 2 basin, to the Wharton vein on the south dip. The tunnel was 387 yards in length; size, 9′×12′. The Wharton seam was pierced in a fault, and at present gangways are being driven east and west to prove the coal. The intention is to continue the tunnel, to cut the old Mammoth workings, and to drain the water through the tunnel.

To be enabled to compete with this additional water, a Duplex pump was put in No. 4 slope. The water and steam cylinders have respective diameters of 14″ and 32″, stroke, 48 inches. The capacity of this pump is about 2,500 gallons per minute.

Improvements at Tresckow by Lehigh and Wilkes-Barre Coal Company.

The inside slope at No. 7, in the Wharton vein, was sunk 65 feet to the basin. Four new cylindrical boilers were erected, and the boiler-house was enlarged. A little east of the breaker a small proving shaft was sunk to a depth of 72 feet, where it cut a two feet vein of coal. The shaft will be sunk to prove the Buck Mountain vein.

Improvements at Beaver Brook by C. M. Dodson & Co.

No. 10 slope was sunk another lift of 75 yards in the Buck Mountain vein. The coal was good all through. Four new cylindrical boilers were erected at the breaker. Finding the Buck Mountain in good shape at this place was a lucky thing. The existence of this vein in workable order was doubted by all the knowing ones, but the perseverance and tact of the superintendent and mine foreman proved they were nothing else than false prophets.

Improvements at Milnesville, Stout Coal Company.

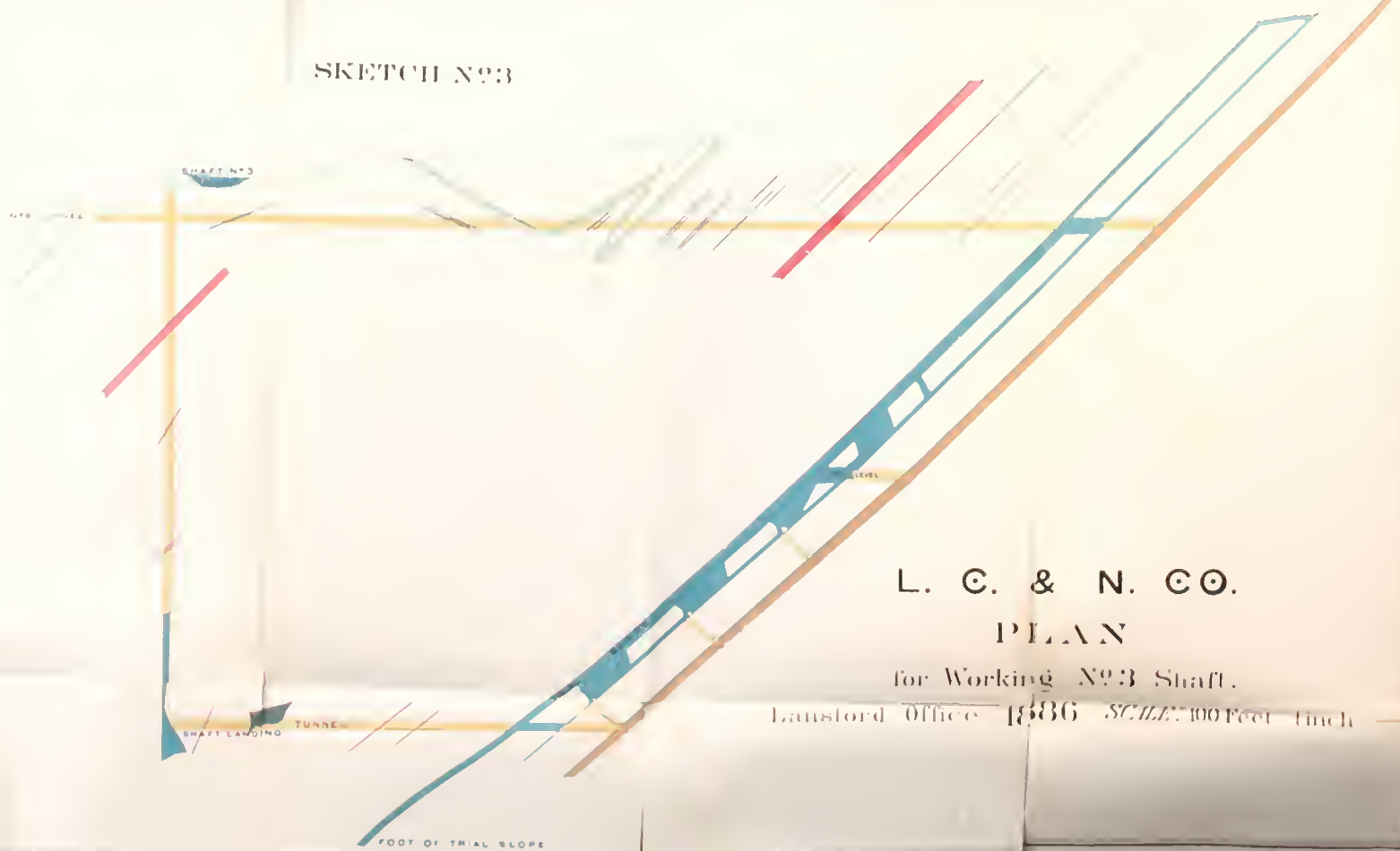
An addition was built to the breaker, including screens, roll, &c., which will add about 25 per cent. to the capacity of the breaker. An engine-house, with a 30-horse-power engine, was erected at No. 1, to hoist the coal from the stripping. Also, a boiler-house and four new cylindrical boilers were put in place to supply the hoisting and pumping engines with steam. About 100,000 cubic yards of surface were removed from No. 1 basin.

Improvements by the Lehigh Coal and Navigation Company.

A large number of improvements were made at No. 3, Nesquehoning. There were 1,375 feet of the west gangway from the old No. 1 Tunnel re-opened. This gangway was driven in a portion of the Mammoth vein. Two rock curves from No. 1 Tunnel were driven to re-open the old gangway in the Primrose. No. 1 Drift gangway in the Mammoth on the south dip was re-opened for 1,430 feet.

The air hole from No. 1 Tunnel level to the surface was enlarged from

SKETCH N°3



L. C. & N. CO.

PLAN

for Working N°3 Shaft.

Lansford Office 1886 SCALE: 100 Feet 1 Inch

16 feet area to 30 feet area. A new fan, 21 feet in diameter, was put in place. The width of the vanes is 7 feet. The fan is driven by an 18×32 engine. Four new cylindrical boilers, $32'' \times 36'$, were erected with the fan and engine-house, making a very complete plant.

No. 4.—The improvements at this colliery consist of a new outlet airway, size $8' \times 10'$, in the vicinity of and connecting with old No. 7 slope, at the top of which is placed a new 21-foot fan to ventilate the east gangway, third lift. This gangway has passed around the synclinal axis ingood coal.

No. 5.—The east gangway in the Primrose has passed the synclinal axis, where an intake airway of good size was driven to the surface, which has greatly increased the ventilation, making No. 5, as far as ventilation is concerned, equal to the majority in the district.

No. 6.—The improvements here consist of sinking a shaft from the surface to the Red Ash vein, a distance of 995 feet. The dimensions of this shaft are about 37×14 feet, which is timbered from top to bottom by 12×12 yellow pine timber, placed from 3 to 5 feet from center, and planked closely all around. The sinking and timbering of this shaft were all done by the day, under the special supervision of William H. Evans, the general inside foreman for this company. He took great pride in having all the timbering done in the most approved manner, and this work reflects great credit on him for the successful and speedy way it was carried out. Great progress was made in the sinking, when it is considered that they had to timber the shaft about every week on account of the great dip of the strata. He is commended, also, for the care he took of his men, as only one man was injured during the whole operation. That man had his leg fractured by a piece of rock falling out of the side a few feet above him. From the bottom of the shaft a tunnel has been started north to cut the Mammoth seam, also a short tunnel is being driven to cut the Red Ash on the south side. The sinking of each mouth was as follows, including the timbering:

Prior to April, 1884, 35 feet were sunk, and from the solid foundation at that place, a thick stone wall, laid in cement, was built to the surface as a foundation for the head framing. The sinking proper dates from April 1, 1884:

From April 1, 1884, to	May 1, ...	49	feet were sunk.
	May, ...	55	
	June, ...	44	
	July, ...	40	
	August, ...	50	
	September, . . .	51	
	October, ...	57	
	November, . . .	43	
	December, . . .	39	Sinking was delayed this month by putting in a new pump.

1885—January, ...	65	feet were sunk.
February, ...	56	
March, ...	67	
April, ...	56	
May, ...	47	
June, ...	51	
July, ...	67	
August, ...	51	
September, . . .	61	
October, ...	11	Sunk in 1 week.
	960	

I consider this rapid sinking, as everything was finished when the shaft reached its terminus. As all the timbers and guides were permanently put in while sinking, I must say here that the new mine law has made the sinking of shafts much safer than it was heretofore.

The second outlet to this shaft has been sunk in the Primrose, a distance of 1,400 feet, leaving still a distance of about 230 feet to reach the level of the bottom of the shaft. The size of this second opening is $9' \times 16'$.

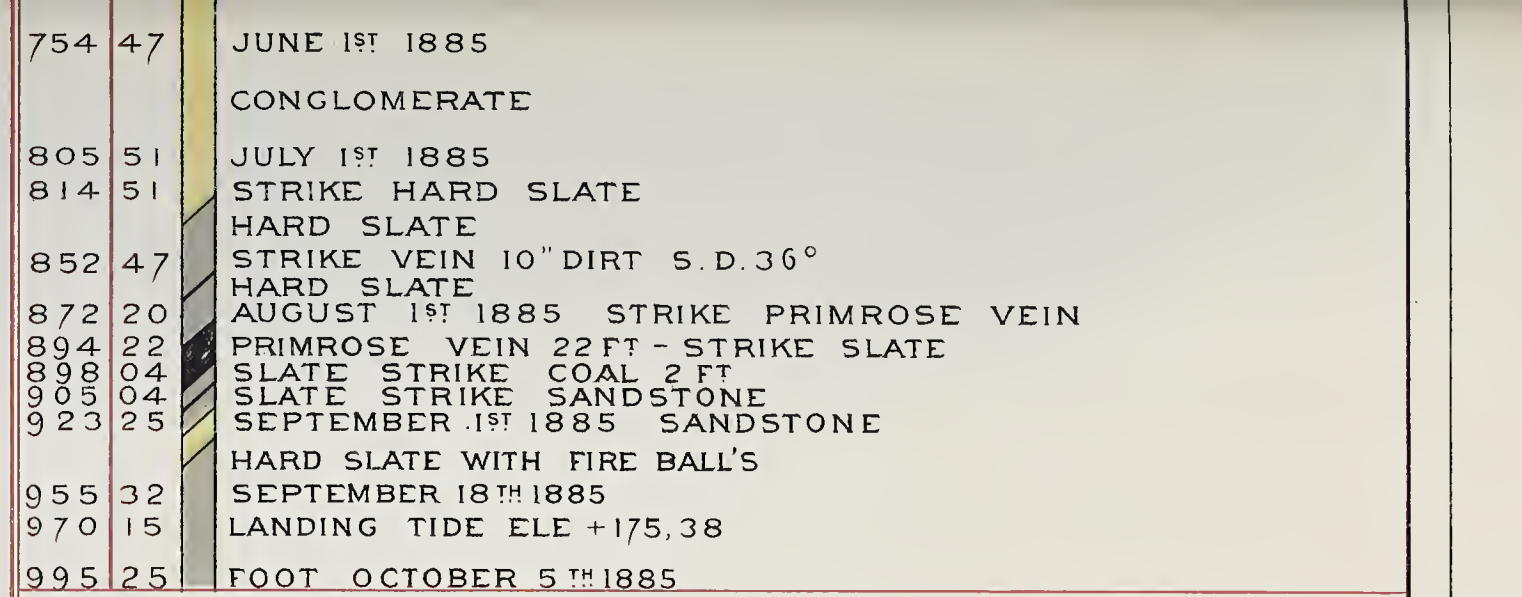
The pumping machinery used in sinking this opening consists of one No. 49 Cameron pump, 16″ steam, 7″ water cylinder, with 18″ stroke. This pump is located 600 feet below the No. 6 Tunnel level with a vertical lift of 400 feet, and a No. 5 Cameron pump, 12″ steam and 5″ water cylinder, 14″ stroke, located near the bottom, with a vertical lift of 330 feet. These pumps are run by compressed air, supplied by one Allison air compressor, size 22″ steam and 24″ air cylinder, and 24″ stroke, running 30 revolutions per minute.

The compressor is located near No. 2 shaft, and at present 8 boilers, $36'' \times 36'$, in addition to furnishing steam for the shaft hoisting engines with 60 pounds' pressure, furnishes, under the present circumstances, the required 70 pounds' air pressure for running the above pumps.

The exhaust air from these pumps and a three-foot fan located on the surface affords sufficient ventilation. The water from the bottom of the shaft is hoisted by water tanks.

No. 9.—The workings of this colliery continue in good condition. At Springvale a new tunnel has been driven south a distance of 416 feet, to cut the north dip of the Dry Hollow or Sharp Mountain basin. The vein was found in excellent condition and the coal of superior quality. This tunnel develops a large area of virgin coal.

A new locomotive was added to facilitate the transportation of the coal from Springvale to No. 9. This additional improvement will greatly increase the production of No. 9 colliery.


754 47 JUNE 1ST 1885
CONGLOMERATE
805 51 JULY 1ST 1885
814 51 STRIKE HARD SLATE
HARD SLATE
852 47 STRIKE VEIN 10" DIRT S.D.36°
HARD SLATE
872 20 AUGUST 1ST 1885 STRIKE PRIMROSE VEIN
894 22 PRIMROSE VEIN 22 FT - STRIKE SLATE
898 04 SLATE STRIKE COAL 2 FT
905 04 SLATE STRIKE SANDSTONE
923 25 SEPTEMBER 1ST 1885 SANDSTONE
HARD SLATE WITH FIRE BALL'S
955 32 SEPTEMBER 18TH 1885
970 15 LANDING TIDE ELE +175,38
995 25 FOOT OCTOBER 5TH 1885

MEAN TIDE.

SECTION

OF

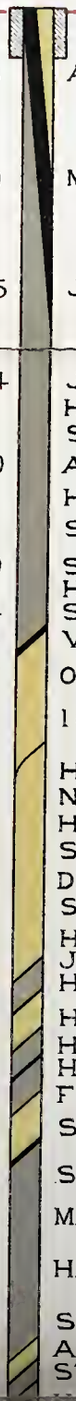
LEHIGH COAL & NAVIGATION CO'S.

SHAFT Nº 2 ~ COLLIERY Nº 6.

LANSFORD OFFICE FEB. 1886.

SCALE 100 FT PER INCH

HEAD OF SHAFT — TIDE ELE + 1145,38



35	13	APRIL 1ST 1884
84	49	MAY
139	55	JUNE
183	44	JULY HARD SLATE S. D. 50°
223	40	AUGUST HARD SLATE S. D. 50°
273	50	SEPTEMBER HARD SLATE S. D. 50°
297	24	STRIKE 4 FT COAL DIRT
304	00	VEIN COAL DIRT
324	27	OCTOBER
342	18	18" DIRT
369	27	HARD SANDSTONE ROLLING
381	12	NOVEMBER 1ST 1884 HARD SANDSTONE SOUTH DIP 45°
424	43	DECEMBER 1ST 1884 SOUTH DIP 55°
453	29	HARD SANDSTONE END'S HARD SLATE BEGINS
463	10	JANUARY 1ST 1885 HARD SLATE
469	06	HARD SLATE END'S & HARD SANDSTONE BEGINS
489	20	HARD SANDSTONE END'S STRIKE HARD SLATE
500	11	HARD SLATE & STRIKE 2 FT COAL S.D. 26° HARD SLATE
528	28	FEBRUARY 1ST 1885
543	16	STRIKE COAL 3 FT S.D. 40°
		SLATE WITH FIRE BALL'S
584	41	MARCH 1ST 1885
		HARD SLATE WITH FIRE BALL'S
640	56	STRIKE SANDSTONE
651	11	APRIL 1ST 1885 SANDSTONE - STRIKE HARD SLATE
661	10	STRIKE 2 FT SOFT COAL - THEN SLATE

Improvements by Coxe Bros. & Co.

CROSS CREEK COLLIERY SLOPE, No. 1.—A number of gangways have been driven through the faulty Buck Mountain vein, area extending under the gently sloping hillside south of Drifton toward Oakdale, opening a large amount of coal. A tunnel has been started in the Second lift on line of slope No. 1; it has crossed the anticlinal between slopes No. 1 and No. 2, and the Buck Mountain vein on north dip. It will probably reach the Wharton and Mammoth veins in the latter part of 1886. Gangways have been continued and breasts started in the Gamma vein, proving this vein so far of excellent quality. This being the first opening on that vein ever made in this region, as far as known, it is a matter of general interest.

Mr. Coxe gave me the following explanation how the discharge pipe was fastened in the bottom of the hole, with a blue print of part of the hole and "Y." The hole was bored down the rock and squared off, as shown in the blue print; a series of holes were bored, by means of a hand diamond drill, which were all inclined toward the center. The outside edge of this series of holes, which were close together, is the outside line of the oakum on the print. In this way we were enabled to get a very good tapering hole, although we made no effort to have it smooth on the outside, as there was no need of its being so; in fact, it was better for it to be rough so that the oakum could pack into the crevices and stick in better. The upper end of the hole where the diamond drill holes stopped was then carefully faced off, a lead washer put on, and the bushing squeezed up against the lead washer. The oakum was then tamped in carefully upon the bushing so hard that the steel tamping bar would almost jump back as against rock. A facing of perfectly true white pine, containing no knots, was put in between the rock, oakum, and bushing on one side, and the cast-iron ring marked "F" on the other. The "Y" pipe was then put in, and the whole screwed in by means of a screw to the column. There are eight stud bolts, not shown on the blue print, which hold the ring "F" to the "Y" pipes. The column which supports "Y" piece has on it two valves, to which hose is attached so that it can be used in case of fire, and also to empty out the column whenever it is necessary. One side of the Duplex pump discharges into one arm of the "Y," and the other side into the other. The pump is easily disconnected from the "Y" pipes by simply slacking the bolts that fasten the "F" pipes to the two valve chambers on the top of the pump. As soon as these bolts are slacked, the "F" pipes can fall away from the "Y" pipes, and there is no trouble in disconnecting it.

CROSS CREEK COLLIERY, No. 2, has its workings principally extended in the bottom lift; large turn-outs have been made, and the coal proves to be of superior quality. Two thousand yards of gangway are driven ready for breasts, and an airway is completed to the top of the anticlinal, between Slopes No. 2 and No. 1, which developed an undisturbed vein for six hun-

dred and forty feet, or over half a million tons of breast coal on the gangways already driven. A rock slope is being sunk over the top section of the present hoisting Slope No. 2, to give slope a better grade.

CROSS CREEK COLLIERY, No. 3.—Repairs have been made during the last couple of months, and a new hoisting slope been started on the south dip, through which the coal will be hoisted and brought over a surface road to Breaker No. 2.

BUCK MOUNTAIN COLLIERIES came into the actual possession of Coxe Bros. & Co. during the year 1885, and work was at once commenced to open and secure Slopes No. 5, No. 7, and No. 4, as the workings give a natural drainage for seventy to eighty per cent. of all coal which remains unmined at the Council Ridge collieries, (Eckley.) This connection was made during the night of December 31, 1885, when Coxe Bros. & Co. obtained control of the Eckley mines. All pumping in No. 2 slope was at once discontinued, and on the day when the disastrous floods were drowning so many collieries in this region, the water flowed from Eckley through the Buck Mountain works, and in the Slope No. 4, of Buck Mountain gangways, water ran at the rate of seven hundred thousand gallons per hour, and this stream, increased by additional water from Buck Mountain, No. 4 and No. 7, was flowing five feet high through the gangway at foot of Slope No. 5. By investing capital in tunnels instead of in boilers, hoisting engines, and pumps, a large amount of coal will be made available, which is acknowledged to be the best from the Buck Mountain vein.

BEAVER MEADOW is developing steadily. Forty-eight thousand cubic yards were moved in the stripping, and about twenty-one thousand cars of coal quarried. The main hoisting slope was completed, its south track being one thousand two hundred and eight feet long, and the north track six hundred and eighty-eight feet long. Three cars are hoisted by a barney at one time, which brings the capacity of this slope to about nine hundred cars per day, so that the production of this colliery is not limited by its hoisting capacity. An artesian well is sunk for regulating the water-supply.

TOMHICKEN COLLIERY.—The developments have been pushed in the old workings promising more coal. About half-way between this colliery and Derringer, a new opening has been made which will be known as Tomhicken, No. 4. A shaft is sunk six to seven yards in rock, substantially walled through the covering sand and clay. Dwelling-houses have been erected, and boilers and engine put in place. A surface railroad of about two miles is in progress from here to old Tomhicken to transport the coal to the breaker.

DERRINGER COLLIERY.—The breaker, which was burnt down in 1884, was rebuilt, and resumed operation in the latter part of March. The workings in the lower level have been extended, and a tunnel is being driven southward on this level to strike the Buck Mountain seam. The coal from this

level will be hoisted through a shaft to the present working level within one hundred yards of bottom of breaker slope. A hole was drilled from the surface to the second lift in the center of projected shaft, through which the rope will be run from the over-ground hoisting engine. This hole is cut by the tunnel underneath; it serves at present as an air-hole for this tunnel, and will save the pumping when the shaft is being sunk.

Gowen, No. 4.—This slope is really a part of the Gowen mine, but is delivering its coal over a surface railroad, which was built at a cost of twelve thousand dollars to the Derringer breaker. The slope was sunk to the basin of the Wharton, and gangways, which have been driven east and west, show that the basin rises in both directions. The vein is in a fair condition, the coal of good quality.

Gowen Colliery.—Nothing new or of any special interest at this mine. All work done during 1885 merely continued previous developments. A drift was driven southward into a large piece of flat coal in the West Valley, (Roberts Run,) and a tunnel was driven northward to reach the Buck Mountain vein, in which several hundred yards of gangway have been driven dividing the north dip above water level into two sections. This tunnel has penetrated two veins overlying the Buck Mountain, and a large amount of coal will pass through these openings, which start from the surface. A surface railroad has been built to connect with the existing system of tracks. A large boiler-house, containing six boilers, has been built in a central location between slope and breaker to replace boilers which, at present, stand at the breaker and at the slope.

General Remarks on Accidents.

The total number of fatal accidents does not vary much in this district. By looking at the reports for the last five years, it can be seen that the number of deaths varies from forty-seven to thirty-eight, making an average loss of 41.5 per year.

With proper regard for the safety of lives on the part of mine management, and especially among the employés themselves, the above figures should be greatly reduced, and I hope that the following years will show a decrease of the number of fatal accidents in this district; in fact, I have no doubt of the result, if the employer and employé will make an effort to live within the limits of the law, as its provisions are very general, covering most all causes of accidents.

Accidents from falls of different kinds are the most numerous this year as in the past, but I am happy to say that the percentage of such accidents has been greatly reduced in this district.

In years gone by, the percentage was from sixty to seventy-five per cent. of the total number of accidents. During the year 1885, nineteen persons lost their lives through falls, equal to forty-five per cent. of the total number. Of the nineteen lives lost in this district through falls, fourteen of the victims were miners, four miners' laborers, and one driver. Of these

fourteen, nine came to their deaths by not taking the proper care of themselves while engaged at their dangerous occupation.

Of the four laborers that were killed by falls, one met his fate through his own carelessness, and another through the carelessness of the miner. The driver lost his life through his own folly, and partly through a miner's neglect.

Of the seven killed by mine cars, four came to their end by sheer recklessness, which is characteristic of this class of employés in and about coal mines.

One life was lost through an explosion of carbureted hydrogen gas. This accident occurred in direct violation of the law on the part of the mine foreman, who did not have the working-place examined and reported safe before the man entered his breast. The jury brought in a verdict, "that this man lost his life through the gross neglect of the mine foreman." I have returned the case to court, but it has not yet been disposed of.

The three lives that were lost through premature blasts can be classed among the great number that lose their lives every year through the most daring recklessness, as there is no more dangerous and risky proceeding ever tried in a coal mine than to drive in a tight cartridge with the butt end of a drill.

The three lives that were lost by machinery in breakers are proof that no amount of fencing in of the dangerous parts of machinery, and no amount of care on the part of the management, can always guard the employés from danger, unless they themselves take the proper precaution. I can here certify that if these three persons had used ordinary care they would have been saved.

The three persons who lost their lives through boiler explosions, came to their deaths through the incompetency, or, perhaps what is still worse, through the carelessness of the boiler examiners, who perjured themselves by swearing that they were competent to examine mine boilers, or by swearing that the boilers were examined when they were not. The jurors in each case failed to point out the guilty party.

After this review of the causes of fatal accidents, I feel confident in saying that at least fifty per cent. of the forty-two lives lost in this district last year would not have a record if the employés had cared for their own safety as men under the circumstances should.

Perhaps if the managers of our coal mines were more positive in their instructions to their employés, many lives would have been saved. If I should enumerate the one hundred and fifty-eight non-fatal accidents, I am confident that the same reasoning and proportions would hold good.

Fatal Accidents by Falls.

ACCIDENT No. 1.—Daniel and Peter Cambell, Irish, miners, aged respectively twenty-one and eighteen years, were killed by a fall of slate at Upper Lehigh, No. 5, on the 5th day of January.

The Cambells were brothers, and were engaged working a breast. Although comparatively young, they had worked one breast before. This breast had a very bad roof, necessitating many props, which had to be kept right up to the face of the coal.

In my examination of the place after the accident, I could not find much fault with the mode of propping, yet it was not equal to the propping of old and experienced miners, or the accident would not have happened.

These young men were hard pushed for coal to keep up their trips; and to do that they had gone in before the usual time that morning, as a miner in the next breast testified that at about seven o'clock he heard them blasting a shot. Some time afterward, the driver left a car at their chute, and called on them, as was his custom, to come to load their car. When the driver came back for the car, he found it empty. He then made inquiries of a miner named Vearplot, who worked near them, as to why the Cambells hadn't loaded their car. Vearplot then went into their place to find out the cause of their not loading, and was horror-stricken to find the men dead under large pieces of slate. After hearing the evidence, and also closely examining the place, I came to the conclusion that the blast they had fired at about seven o'clock in the morning must have displaced at least two of their props, and while in the act of replacing them, the slate fell. This accident should be a warning to all miners not to attempt to stand props which have been knocked out by a blast until the place has settled, been examined, and found safe.

Accident No. 4.—Patrick Conyngham, Irish, miner, aged about seventy-five years, was killed by a fall of coal at the No. 6 stripping at Yorktown on the 5th day of January. He was engaged blasting coal for the Hungarians, and, with a little care and forethought, could have done the work with safety, as he was an old and experienced miner, and considered a good workman. At the time of the accident he was tamping a hole, thus shaking the overhanging coal, when a large piece fell from a height of about five feet and struck him on the head, fracturing his skull.

Accident No. 5.—Michael Nash, Italian, miner, aged thirty-five years, was killed by a fall of slate at Laurel Hill in the Wharton seam on the 5th day of January.

Deceased, with a miner named Charles Schraunn, was engaged robbing pillars, a very dangerous work at best, and indeed this was one of the safest places for that kind of work, as the seam is thin, being only about five and one half feet in thickness.

These men had succeeded in taking out the pillars to the gangway stumps, and at that place had put up a large number of props, but by an oversight on their part, they did not detect a loose piece that hung between two props, which fell and knocked out several props, allowing a large flake of slate to fall on deceased and Schraunn, injuring the latter slightly.

The mine-foreman, James Durkin, had been at this place a few hours prior to the accident, and saw nothing unusual, but warned the men to be careful.

ACCIDENT No. 12.—Michael Dougherty, Irish, miner, aged — years, was fatally injured by a fall of clod at Yorktown, No. 5, on the 15th day of February, and died at the Bethlehem hospital.

ACCIDENT No. 15.—Conrad Deisenroth, German, miner, aged forty-two years, was instantly killed by a fall of coal at Hazleton, No. 6, on the twentieth day of March. Deceased was working a breast in the Mammoth, and, by the evidence of his partner, had fired a blast, and returned immediately to see what the results were. He then commenced to bar down some large pieces of hanging coal, when suddenly a large mass of it fell on him.

Deceased was very injudicious in his work of barring. If he had reflected a few moments, he would readily have seen that there was no avenue of escape for him if the coal fell.

When I examined the place the following day, I found a great deal of partly loose coal hanging, and thought that no sane man would try to bar it down, when he could put a blast in the solid and bring it all down with the other coal. I must say that had deceased taken the necessary precaution, we would not have had to chronicle this terrible accident.

ACCIDENT No. 16.—August Whitebread, German, miner, aged thirty-four years, was fatally injured by a fall of coal at Eckley, No. 5, on the 20th day of March, and died on the 25th.

This man met his death through sheer carelessness. He had fired a blast and went right back and commenced to bar down the loose coal, when suddenly a large piece fell, which struck him on the head, fracturing his skull, from the effect of which he died as stated.

ACCIDENT No. 22.—Alexander Campbell, Irish, miner, aged about forty years, was instantly killed by a fall of clod in the Mammoth seam, at Harleigh, on the 22d day of April.

This is one of those unforeseen accidents peculiar to coal-mining. It could not have been guarded against by any person. Deceased, with another man, was engaged robbing pillars, and while their car was being shifted by the driver, it ran down a grade and got off the track. Deceased's partner and others were called to put it on the track. While thus engaged, a large piece of clod fell from the top, a distance of about thirty feet, killing Campbell instantly, while the other men had a narrow escape and were only saved by the car being struck first.

This is a peculiar accident, as the counter gangway, where it occurred, had been driven for several years across old breasts that had been worked out for nearly twenty years, the roof of which was carefully examined and considered safe all through. A good proof of this was that nothing ever fell on this road during the years it had been in use.

When I examined the place the following day, everything was as still as usual, yet I thought that this fall was a forerunner of something more serious. I inquired of the mine foreman, Griffiths, who is a very competent man, if

he had noticed any sign of a squeeze in that part of the mine. He answered he had not. We went through a large portion of the place and examined it carefully and detected nothing wrong. I ordered the foreman to watch it closely and report if he found any indication of a general squeeze. In three days he notified me that he detected the indication of a squeeze. I went over again and satisfied myself that a general squeeze was coming. I, therefore, ordered all the men to be taken out from that section of the mine. From that day for nearly four weeks the place worked and finally closed in affecting the whole strata to the surface for four or five acres. This is the first fatal accident in this seam from falls for the last five years, and I think the management deserve great credit for the care they have taken of their men.

I must also say that the old miners of Harleigh are peculiarly fitted for the dangerous work of robbing pillars, which has been nearly the only work done in the Mammoth since the large cave-in of 1877, when two men lost their lives, whose bodies are still in the mine.

Accident No. 23.—Hugh L. Jones, Welsh, laborer, aged twenty-seven years, was instantly killed by a fall of coal at the face of a gangway in the No. 2 slope of Upper Lehigh, on the 23d day of May.

This is another accident that possibly the best care and judgment on the part of the miner could not have prevented. The place where Jones was killed would generally be termed very safe. The coal is strong, the roof good, and place only sixteen feet wide, with an angle of 10°.

The miner had taken a row of opening shots from the lower tier of coal, and while the laborers were loading a car, the miner was drilling a hole on the upper side, expecting to knock down several cars of coal with it. While they were all busily engaged, a large piece of coal, weighing about eight tons, toppled over, killing deceased instantly, and also came near killing the miner and the other laborer.

This accident was caused by a smooth slip running through the coal at right angle with the gangway, which could not have been detected by the miner as about six feet of coal intervened; thus, after the bottom coal was taken out, there was no support for the top.

Accident No. 24.—Josiah Blackwell, English, laborer, aged twenty-four years, was killed by a fall of coal from a pillar at No. 5, Stockton, on the fourth day of June.

Several months prior to this accident an extensive squeeze had taken place in this slope, closing several gangways, and partly closing the gangway where deceased met his death.

Blackwell and a miner named James McGee were sent to load up the loose coal in this gangway, with instructions to take down all loose pieces as they advanced. Afterward the timbering needed was put in by the night gang.

Ordinarily, in strong coal, that practice might be safe, but in this place

the men loading the coal should have been competent enough to do the necessary timbering so they could make the place safe as they went on.

The foreman had visited this place twice that day before the accident, and pronounced the place safe, but he must have erred in judgment as the sequel proves; because when Blackwell and McGee were loading a car, a large piece of coal slid from the side, pinning Blackwell against the car with result as stated.

ACCIDENT No. 25.—Jacob Ulshafer, German, miner, aged fifty-three years, was instantly killed by a fall of a rock boulder at Derringer, in the Buck Mountain seam, on the 25th day of June.

James Slusser, the boss timberman, testified that he called at deceased's breast the afternoon previous to the accident, and saw that deceased had blasted down his top coal. He told him to clear a place for a few props as he thought the place was in need of them. Deceased complied with the request.

The timbermen went there this fatal morning and dug holes for two props. They then went down to gangway to cut them. When they returned with the props, they found that a large piece of rock had fallen. They looked for deceased, who was sitting at the face of his breast a few minutes previous, and found him dead under the fallen mass.

Why he went there no person could testify, as he was all alone when the timbermen left him. He had no business whatever to be at the place where he was killed, as all the propping is done here by company men, as is the case in all of the mines of Coxe Bros. & Co.

ACCIDENT No. 27.—Patrick McGlynn, Irish, miner, was instantly killed by a fall of coal at No. 3, Ebervale, on the 27th day of August. Deceased, Bernard Mulherrin, and John Brislin, three practical miners, were engaged robbing pillars in the second lift gangway of No. 3, and had been at this work for about one year. In my examination, I came to the conclusion that they were good, practical miners, as up to that time they had done their work well to the satisfaction of all concerned, and with safety to themselves.

As they were three miners working together, they did the blasting alternately, one doing the blasting while the other two did the loading; and the man doing the blasting usually looked after the safety of the place, the other two men trusting to his judgment.

The day of the accident, McGlynn did the mining, and after firing a blast, (the only one during the day,) he went back. It was supposed by his partners that he had examined the place, as he came back to them and reported the place safe.

Mr. Nesbitt, the mine foreman, visited the place a few hours prior to the accident, and called the men's attention to the top bench, as he thought it did not look very safe. Deceased answered by saying "It is perfectly safe," as he had examined it himself. The mine foreman took his word for it as it could not be examined without a ladder.

Bernard Mulherrin corroborated the testimony of the mine foreman, and said further that McGlynn was one of the most competent miners in Ebervale, and when McGlynn reported a place safe, he never troubled himself about it.

It is very evident to my mind that had McGlynn made the necessary examination he would have found that the top bench was not safe. It is a rare thing to have any of these benches safe, and they should be always taken down and not left hanging.

The bench that fell was about two and one half feet in thickness. About five tons of it fell without any warning, killing McGlynn, smashing the car and tools, and came nearly killing the other two men that were loading.

Accident No. 33.—Anthony Bertrie, Austrian, miner, aged thirty-five years, was fatally injured by a fall of clod, in the Wharton seam, at Beaver Meadow, on the 23d day of September, and died the following day at the Drifton hospital. In investigating the cause of this accident, I found that deceased was working a breast in very hard coal, to all appearances perfectly safe. Some time previous to the accident he had commenced to mine his top coal first, as the bottom coal was sticking. Above the top coal, which was about five and one half feet in thickness, a black slate about six inches thick was found, which generally came down with the blasts; but the day of the accident the blast did not throw out the coal, when deceased at once commenced to loosen it with his drill. While thus engaged this thin bench of slate fell on him, injuring him internally.

I am in duty bound to say that deceased was not a miner only in name, and his working-place would convince any competent judge of the truth of this statement.

Accident No. 34.—John McGrath, Irish, miner, aged thirty-seven years, was killed by a fall of slate, which knocked him down an old breast in the Wharton, at Mt. Pleasant, No. 4, on the 25th day of September.

As this was a peculiar accident, I will explain it by saying that deceased had driven a piece of counter gangway from breast No. 20 to a point opposite breast No. 22. Breast No. 22 had an average pitch of about seventy degrees, which terminated very abruptly in a flat. To get the coal from this flat the counter gangway was opened. Deceased knocked a small hole into breast No. 22, through which the coal was to be dumped, so it could be loaded with the general mine cars on the main gangway.

When McGrath had driven the hole into breast No. 22, the foreman ordered him to open a breast about sixteen feet wide, and to secure the place by propping it as soon as he had made place for props. Deceased commenced to open the breast the day the foreman had been there, and between him and the laborer they fired about ten blasts that day. The coal slid readily through the opening into the breast below. By the ten blasts he opened the breast to a distance of about sixteen feet.

By the testimony of his laborer, deceased and himself went in early this fatal morning, with the sole intention of making room for the props and putting them in place. When they reached their working-place, deceased examined it and found pieces of slate hanging. He took his drill and pried them down, saying to his laborer that everything was safe, and that he should help him to roll the large flakes of slate away, so they would not slide into the breast among the coal. While engaged at this work a large piece of slate fell, knocking the laborer toward the face, and the miner through the opening into the breast, when he fell to the battery, a distance of about sixty feet. He was taken out dead.

After looking at the place and hearing the evidence in the case, I must say that John McGrath came to his death by neglecting to put in the necessary props in time. If McGrath had had a few props put in the day previous to the accident, the place would have been safe to work in.

ACCIDENT No. 35.—Samuel Carlin, English, miner, aged forty years, was killed by a fall of coal from a pillar, at Hazleton, No. 8, on the 26th day of September.

Samuel Carlin and Frank Burns were working in an old breast which was abandoned twenty years ago. This breast had been worked on the top of the slate, leaving in the four feet, which, in this breast, proved to be about seven feet in thickness. These two men worked this place up successfully for sixty yards, where the face of the old breast ended. Here they commenced to mine from the solid. After going in about fifteen feet they took down the benches, but were not careful to trim the sides down. While loading a buggy, a piece of the top bench fell and struck Carlin as stated. I found that the mine foreman had been in this place a few hours prior to the accident, and he at that time saw nothing wrong. The last blast was fired after he left, and from this blast the danger came.

ACCIDENT No. 36.—John Lannon, Irish, laborer, aged twenty-four years, was instantly killed by a fall of the poorman at Lattimer, No. 3, on the 1st day of October.

It can be truly said that the fault of this accident cannot be attributed to John Lannon. Deceased was laboring in a flat breast for a man by the name of David Weber, who gave the following testimony:

"I commenced this breast in September, 1883. I finished blasting my top coal about three months ago, and at that time I trimmed every loose piece down, and can certify that the poorman was solid then. During that time we were loading out the loose coal, and had commenced to blast in the solid a few days previous to the accident. I commenced by blasting out the two-foot. A blast in that brought down the seven-foot, as a slip ran from the two through the seven and poorman. I didn't know at the time that the slip went through the poorman, or I would have kept the laborer back."

In answer to my question, "Why didn't he open in the bottom coal

first?" he said, "that a pile of coal was in the way, and that he was anxious to see how it would do to take the two and seven-foot first."

The mine foreman testified that when the top coal was blasted down, he went up on the coal and examined the roof and found everything safe, as the miner had testified. He admitted allowing the miner to take a cut out of the two and seven-foot, then he should trim all the loose pieces and commence again in the bottom. The foreman and miner erred in judgment by working the top coal first, as these blasts had the tendency to loosen the poorman above.

Michael Morachi, Hungarian, laborer, aged thirty years, was instantly killed by a fall of coal in the B seam, in the Slant, at Drifton, on the 21st day of October.

Deceased was laboring with an old practical miner, who was robbing gangway stumps, a safe work at this place, if the miner had taken the proper precaution. The miner testified that he had fired a blast in the afternoon previous to the accident, went back, made the usual examination, and found the place safe. He then went home. The morning of the accident they went to work and loaded two cars. While deceased and minerwere shoveling some coal toward the track, a piece of coal fell, killing Morachi, and came near killing the miner.

The day following I examined the place, which had been idle since the accident. I found the place in a dangerous condition; two or three carloads of coal on the eve of dropping. I reprimanded the miner severely for his recklessness, though he insisted that he had examined the place the morning of the accident, and thought it safe enough, or he wouldn't risk himself or laborer. If he had examined the place, I must say that his judgment was very poor. The miner was suspended for several weeks.

Accident No. 39.—James Metzgo, Hungarian, laborer, aged twenty years, was killed by a fall of coal at the Yorktown stripping, on the 24th day of November. He came to his death by attending to other people's business. The miner called on the Hungarians to move back, as the top was working. One of the drivers called out that some couplings would be buried. Deceased jumped to get the couplings and was caught by the falling coal.

Fatal Accidents by Mine Cars.

Accident No. 3.—Peter McCue, Irish, helper, aged fourteen years, was killed by a runaway car on an inside plane at Eckley, No. 2, on the 2d day of January.

Deceased was a helper to a driver who was taking the coal from the top of an inside slope to the bottom of this plane, when it was hoisted to the apex, and lowered down the other side. While a car was being hoisted, the rope broke, letting the car dash down the grade of about forty-six degrees, striking deceased and killing him instantly.

James Long, the inside foreman, testified that a few minutes prior to the

accident, he had met deceased and driver going in with an empty trip. He (Long) then went back to the foot of the plane, and had been there but a short time, when he heard a noise up the plane. He called "get out of the way;" after this warning he saw deceased coming toward him, and he was then struck.

If the proper examination of the rope had been made as our present law demands, this accident would not have occurred.

The rope was an old one and full of defects, and really unfit for use. Yet the verdict of the coroner's jury was, "that Peter McCue came to his death by being away from his work."

ACCIDENT No. 8.—Michael Kochman, Hungarian, laborer, aged twenty-three years, was fatally injured by railroad cars at Eckley, No. 5, breaker, on the 16th day of January.

Deceased was one of the loaders at this breaker. His partner having gone for empty cars, deceased saw them coming, and attempted to jump on, but failed, stumbled, and was caught between the cars and lump coal platform.

This is one of the accidents concerning which no person is guilty of any neglect except the sufferer himself, who has paid the penalty with his life.

ACCIDENT No. 14.—August Mosenti, Austrian, laborer, aged about twenty-nine years, was fatally injured by falling out of a car, while being hoisted out of a slope at Gowen, on the 4th day of March. He died the following day at the Drifton hospital.

This is a peculiar accident, and could not have been guarded against by any party but the victim. He was alone in the car, and if he had taken care of himself would have been landed safely on the top. The bottom man testified that he must have fallen when the car was about half-way up, and rolled to the bottom of the slope.

ACCIDENT No. 2.—Joseph Samuels, American, helper, aged thirteen years, was fatally injured by falling under an empty mine car at Harleigh, on the 11th day of April, and died in about five hours.

Deceased was a helper to a driver named Cooney, and was instructed by the foreman to ride on the rear end of the last car, as the cars are sometimes uncoupled on account of the uneven grade.

This time he was riding inside of the last car. The driver dropped his whip, and called on Samuels to pick it up, thinking the boy was riding on the bumper. The boy, instead of getting off the car at the rear end, went over the side in a place where there are no more than eighteen inches of space between rail and rib, while on the other side there are four feet. The boy somehow slipped and fell, and the wheels of the car went over him.

There was no excuse whatever for this boy to lose his life in this place, as the gangway was wide and high, and no refuse whatever on the sides.

ACCIDENT No. 21.—Harry Price, American, helper, aged eighteen years, was fatally injured by mine cars at No. 2, Stockton, on the 17th day of April.

This young man was helping his brother, who was driving a team. As was his custom, he rode in on an empty trip, the driver stopping at the first breast so that the helper could uncouple the last car. While getting out of the car, the mules for some reason started suddenly, and deceased was caught between the top rail and a collar which was lower than the others. The cars at this slope are five feet high from the rail, and this collar was only five feet six inches from rail, and through this space of six inches deceased was pulled. Justice prompts me to say that generally there is sufficient height in this gangway, but the nature of the coal causes the timbers to sink, so the gangway is continually being re-timbered. Yet after all the effort, there are numbers of collars less than six feet from rail.

Accident No 24.—Stephen Patch, English, driver, about sixteen years of age, was found dead on the track in the west gangway of Mt. Pleasant, No. 1, on the 19th day of June.

Deceased was driving on the night shift, and while taking a trip of cars toward the foot of the slope he must have fallen, the cars going over his body. How he came to get under the cars is unknown.

Where deceased got under the cars can be easily seen by the mark of his body on the gangway road. I failed to discover anything wrong with the gangway, as it was of good width and free from obstructions.

Accident No. 42. — Joseph Brusky, Hungarian, driver, aged nineteen years, was fatally injured by mine cars, at Yorktown, No. 6, stripping, on the 29th day of December, and died the following night.

Deceased was engaged driving empty cars from the main road into the several roads in the stripping. The empty cars were taken to these several stations by a locomotive. The day of the accident, the locomotive was longer than usual in making the trip. The foreman, Thomas Davis, went down to the main gangway to see what was causing the delay. Before going, however, he ordered the runners not to run down the loaded cars until the locomotive came, when he would notify them to run the cars down. In a little while deceased came, and told the runner that they should run down the loaded cars. They answered by telling him what the foreman had ordered. He answered that everything was all right, and that they should run the cars down. He then went toward the main gangway; he had just reached that point, when the locomotive with empty cars was coming in. That instant the loaded cars came down the grade, crushing into the empty cars behind the locomotive with said sad result.

Foreman Davis and the party on the locomotive had a very narrow escape. Why deceased should have ordered the runners to run down the cars could not be ascertained.

Premature Blasts.

Accident No. 27.—Barthol Salazer, Austrian, miner, aged twenty-eight years, was fatally injured, at Derringer, by a premature blast, and died on the same day at the Drifton hospital. Deceased had prepared a blast,

lighted the match, and retired to a place of safety. He waited about ten minutes, if the testimony given by an eye-witness is correct, for the blast to explode; finding it wouldn't explode, he thought that the match had extinguished, and went back to relight it; when within a few yards of the hole the blast exploded with said result.

ACCIDENT No. 37.—Michael Lludner, Hungarian, miner, aged twenty-eight years, was fatally injured by a premature blast, at Eckley, No. 5, on the 16th day of October, and died on the 21st of the same month.

Deceased had drilled a hole, made a cartridge, and endeavored to push it into the hole. For one of two reasons—the hole not being round or the cartridge too large—it became fastened in the hole. Deceased took the butt end of his drill to drive it in, and while thus driving, the powder ignited with terrific force, hurling Lludner against an adjoining pillar, mangling him terribly.

This was an accident where the victim paid the extreme penalty for his rashness. Ramming a tight cartridge into a hole is a plain violation of the mine law. Every man caught doing this rash act should be discharged at once, as he is not only risking his own life, but those of others. Happily, in this instance, no person was injured except the violator of the law.

ACCIDENT No. 40.—James O'Donnel, Irish, miner, aged thirty-six years, was instantly killed by a premature blast, at Drifton, No. 1, on the 11th day of December.

This man was working a breast in very thin coal. He was considered a good and intelligent workman. Deceased had partly drilled a hole and ordered his Hungarian laborer to finish it while he would go and make a cartridge. The hole was finished, the miner brought back the cartridge and put it in the hole, where it got fastened so that he could neither pull it out, without breaking the cartridge, or push it in. While in this dilemma he thought of the fatal drill, took hold of it to push the cartridge in, and while thus striking the cartridge with the butt end of his drill, the powder exploded with said sad result.

Miners should never push in a tight cartridge, as it is very easy at first to take the cartridge out; then they should use the butt end of the drill to make the hole round. If that is not sufficient, they should make a smaller cartridge. The ramming of a tight cartridge is the most risky and reckless act a miner can ever be guilty of.

The laborer here was slightly injured. The evidence in the case was gotten from him, as he was the only eye-witness of the disaster.

Explosion of Carbureted Hydrogen Gas.

ACCIDENT No. 29.—Thomas Denneny, Irish, miner, aged thirty-eight years, was fatally burned by an explosion of gas, at Eckley, No. 5, on the morning of the 19th day of August, and died the following morning.

There were two breasts being opened at this place, one by William Aubrey, and the other by Denneny and brother. Aubrey's breast was up from the gangway a distance of about thirty-three feet, and deceased's breast was up only about twenty-eight feet from the gangway. They were opened about ten feet wide at the gangway, and widened to about thirty feet, at a distance of about thirty feet from it. The coal at this point was greatly confused, overlapping, and making double thickness. The miners, therefore, had to make their own pitch for the coal to run until they reached a point where the coal was regular. It was a very desirable place to work, as a few shots during a day were all that were necessary.

I passed this place on the 11th day of this same month, about the time Denneny and Aubrey were just starting; saw no trace of any gas, and found plenty of air in the gangway, which was to be turned up as soon as the first cross-cut was driven.

The day of the accident, deceased and brother went to work as usual, without thinking of the danger that was lurking in their working-place. Deceased started first, his brother following him about ten feet behind. When within about twelve or fourteen feet from the face, deceased's lamp came in contact with the gas, when a terrible explosion took place, burning deceased fatally and his brother seriously.

I made an examination of the place and found about fourteen feet of gas in the breast. I ordered the men in the vicinity away and the gas removed that night or before any of the men were allowed to work near that breast.

I questioned the foreman closely about the accident. He said that he had no fire-boss, having dispensed with him several months before the accident took place, as the fire-boss he had, had not found any gas in the mine for several months. He also said that he never dreamt of finding gas at this place, as Denneny was only a few yards from the gangway; but if he had anticipated any gas, that he would have turned the air up to the face. He said that he was with Denneny and Aubrey the day before the accident, questioned them about the ventilation, both answering that they had good air. Yet he ordered Aubrey to drive a cross-cut at a point thirty feet from gangway, so that it would come out about the face of Denneny's breast.

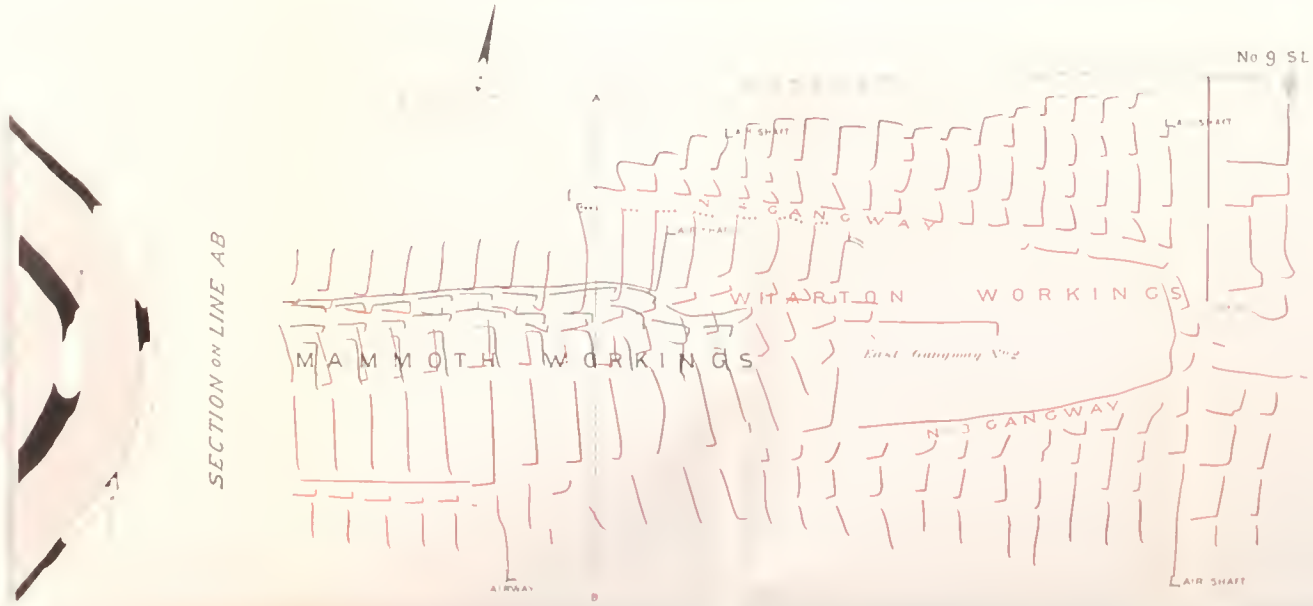
Some time in October, 1884, I was at this mine and within fifty yards of the place where Denneny was burned, where I found gas for the first time in Eckley. I informed the foreman that the law required a daily examination of these places before the men were allowed to go to work. He promised to employ a fire-boss for that purpose. The man he then employed was the man he suspended a few months prior to the accident. I called an inquest, and the verdict of the jury was that Thomas Denneny came to his death through the gross neglect of Peter Pitt, the mine foreman.

Fatal Accidents from Falling into Slope and Breast.

ACCIDENT No 11.—John McTaggart, Scotch, mine-foreman, was instantly killed by falling into No. 8 slope at Jeansville, on the 16th day of February. McTaggart, with four other men, was engaged in laying rails on said slope, which has an average pitch of about 40°. Deceased and Superintendent MacFarlane decided that the safest way to do this work was to commence at the top of the slope, changing the rails as they advanced. The work was done successfully for about one hundred and thirty feet. The morning of the accident they were taking up one of the old rails, when the sills slipped from under them, carrying all the men down about sixteen feet, when they all grappled something and caught themselves, except McTaggart, who rolled to the bottom, a distance of one hundred and thirty yards. I called the superintendent's attention to the unsafe way they had been working. He explained that they commenced on top as it was considered safer, because the water that was continually trickling down the slope would loosen small pieces of coal and slate, which would roll down, injuring the men at work. In my view the argument was not worthy of attention, but I replied that the only safe way was to commence at the bottom, which is the universal custom at other collieries. I instructed the superintendent that if he insisted on continuing in the way they had been working, that a battery should be kept constantly at a distance of not more than thirty feet from the place the men would be working, or even nearer than that if the length of rails would permit. I am sorry to say that McTaggart lost his life through an error in judgment on the part of himself and superintendent.

ACCIDENT No. 28.—George Ferko, Austrian, roadman, aged twenty-one years, was killed by falling down a traveling-way at Drifton, No. 2, on the 1st day of August. Ferko, with several other men, was going to work on the night shift, deceased leading down the man-way, which is one of the best man-ways in the coal fields. For some reason, when nearing the first lift, he stepped over the railing, and into the slope, when he fell down about one hundred and fifty yards. Why deceased stepped into the slope, I was unable to find out, as certainly there was no reason for it.

ACCIDENT No. 30.—Evan Owens, Welsh, miner, sixty-two years of age, was drowned by falling into an old breast at Tresckow, No. 9, Lehigh and Wilkes-Barre Coal Company on the 13th day of August. Evan Owens and son were driving what is called a counter-gangway across the faces of old chambers which were driven up from Slope No. 2. No. 2 had been worked out and abandoned about nine years previous, and allowed to fill with water to a point near where the counter was crossing. The chambers from No. 2 were driven about seven yards wide, as the roof was very poor. Where the accident happened, the pitch of the seam was about 45°. To cross these old breasts, a row of strong props was put below the level of the gangway, and lagged closely to hold the coal from going to the



References

Breast where Four Ounces fell

Line of Water

Shewing Props in Each Breast

Bars to keep Water from No 9

PARTS OF Nos 2 & 9 WORKINGS

TRESCKOW.

100 Feet to 1 Inch

water below. When a breast would be crossed, long stringers were put in from pillar to pillar, on the top of which sills and rails were put in place, so the next pillar could be pierced to the next breast, when the same operation would be performed. The night before the accident, young Owen put a shot in the top slate, which loosened three of the props they had put in; nevertheless, he went home without knowing anything was wrong. The next morning, deceased and laborer went to work. Being a good miner, he saw at once that the props were loosened. He ordered the laborer to load the loose coal, while he would go to the surface for new props, as those in place were now too short, and could not be fastened. After deceased had gone out, the mine-foreman, Owen Evans, came in. He also found that the props were very unsafe, and at once asked for the miner. The laborer informed him that he had gone for props. The foreman went out after him, and found him cutting props. The foreman tried to impress upon him the danger there would be in changing the props, and told him to be very careful in going down with the rope. Owens answered that he would make the place safe. The timbers were sent down, and deceased and son went down. After reaching the face of the gangway, they found that the coal car had not been taken out. In a few minutes the driver and the mule came for the car; deceased, son, and laborer went inside between the car and the face and stood on the loose props, which dropped from under their feet, precipitating the three into the water below. The driver at once gave an alarm, and in a few minutes the driver-boss came and rescued young Owens and the laborer. The deceased, as far as it is known, did not come to the surface. An effort was made to grapple for the body, but the condition of the roof where the props fell was such as to make it unsafe for the men grappling. After examining the place and its surroundings, I ordered the foreman to have the place made secure by timbering as far down as the water, which was about eighteen feet below, then erect a swimming platform on the water, and from that to grapple for the body. Grappling was kept up at intervals for several days, but the body could not be found.

After a consultation with the resident engineer of the company, we agreed that the only way to find the body was to have the water pumped out of the old workings below. To do this work successfully, it was necessary to erect an engine at the old No. 2 slope to lower the pumps down to the water, which was at this point about three hundred feet from the surface.

Two 12″ Cameron pumps were lowered and put in place. With these pumps the water was lowered about fifteen feet vertically. While the water was being lowered, the breast which deceased fell into was made secure, and grappling irons about seventy feet long were used, but without avail.

When everything looked favorable toward rescuing the body as soon as

the water was lowered, a squeeze was observed along the gangway and near the place where deceased fell, which continued slowly until the gangway closed for about ten chambers, the whole basin settling on the surface from the north to the south dip, extending east and west on the surface for several hundred yards. Why the basin caved in at this time, while no mining was carried on inside, remains a mystery, which cannot be solved but in one way, *i. e.*, that the pressure of water before starting to pump was just enough, with the few pillars left in the basin gangways, to hold the surface up.

The displacement of water was equal to about nine hundred and thirty-seven pounds for every square foot, which, if multiplied by thousands of square feet, would be equal to the strength of a large number of pillars.

The company did not make any further effort to recover the body, having satisfied the widow by paying her certain monthly installments. I consider that this company made a reasonable effort to recover the body of Owens. I called a large number of witnesses together, but after a rigid inquiry, failed to find that this accident could have been prevented by any person but the deceased himself.

The testimony of the main witnesses is as follows:

Owen R. Evans testified: I am inside foreman for the L. & W. C. Co., at Tresckow, No. 9. I am fifty-four years of age. Have been inside foreman for twenty-five years. Have been in Tresckow since 1868. Had charge of No. 9 when Evan Owens was killed. Have full charge inside of the mines. Mr. Hollenback is the resident engineer, and I often consult with him; consulted with him about the way I intended to open the north-west counter-gangway where Owens was killed. Took my own way to cross the faces of the chambers that came from No. 2. Evan Owens, Sr., and Evan Owens, Jr., and two laborers were driving the gangway when they broke into the last breast. Instructed Owens, Sr., how to timber—told him to put props on the lower side, lag or plank them closely, then fill up the place with refuse—or coal if he had no refuse—until he had pierced the next pillar, when the company men or himself would put in long stringers. They put in five props Tuesday and Wednesday. I was in the place Wednesday afternoon. The old man Owens told me that everything was all right. I could examine the place, as it was lagged and filled up. Took the old gentleman's word for the condition of the props. Owens, Jr., worked on the night shift. Gave no instructions about blasting the lower side, as it was their duty to make place for the timbers. The company paid so much per yard for gangway, so much per yard for rock and slate, and so much for timbering. I did not instruct them how to blast rock or slate. Owens, Sr., was a good workman, one of the best I had. Gave him the gangway because he was a good, careful miner, and also an old friend. Never heard Mr. Owens say that he was afraid to cross the breasts. He never suggested any other way to do the work. We disagreed about the standing of props; he pre

ferred to put a cap piece on the props, and I preferred a niche in the top I let him have his own way. I considered this a safe way of crossing the chambers. Have driven counter gangways in such places before, and never had any trouble. I think the blasting of the slate that afternoon loosened the props. Went into that gangway every morning, and sometimes twice a day. Owens knew that they had to put stringers there. Went there the day of the accident between seven and eight o'clock, saw that the top slate was blasted down, and the laborer loading a car with coal. I told him that the place did not look safe. I advised him to knock a loose piece of coal down near the face, to make room for stringers. He said by doing that he would knock the whole thing down. I then examined the place, and asked him for the old man. He informed me that he had gone out for his son to help him fix up the place. I asked the laborer to come away, as the place was not safe; he said he would as soon as he finished loading the car. I then went outside to look for Owens, Sr. I found him cutting props with his son. I informed him that his place was very unsafe, and asked why he had not put in the stringers. He said that he had no room yet. I said that he should know the danger, and that if he fell into the water that he could never get out. He said that he would fix the place safe before he would come out, and I never saw him after that. As a miner of thirty-five years' experience, I think the danger is the same in crossing a breast 45° or 50° whether full of water or empty.

I found fault with Owens previous to this for putting in temporary road before the stringers were put in. Told him Tuesday or Wednesday, the latter I think, that the road must be taken up so as to put stringers in. I did not order him to take it up then as I had no idea of the danger, as I thought the props were all right.

Patrick Gallagher testified: I am thirty-eight years of age. I am a driver boss and an assistant boss, at Tresckow, No. 9. I made a practice of going into the north-west gangway several times every day. I was there the afternoon before the accident. I did not give Owens any instructions, as I saw nothing wrong there. I was in Thursday morning before the accident to see if there was a loaded car there, but did not notice that any slate had been blasted the night previous. I had no fear of crossing these chambers. Evan Owens did not want the stringers put in, as he considered it safe enough with the row of props on the lower side. He often told me that. Never heard him have any words with the mine foreman about that matter. Never heard anybody saying it was dangerous to drive this gangway that way. Have worked in the mines from boyhood. I think the danger is about the same in crossing a breast, whether it is full of water or empty, on this pitch. Don't remember of anybody present when the old man Owens made the remarks to me about the stringers. That conversation passed between us when he was crossing the second breast.

Evan Owens, Jr., testified: I am a son of the deceased. Am a miner by profession. Have worked in the mines about seventeen years. Am about twenty-six years of age. I was driving the north-west gangway with my father. I was on the night shift, and my father on the day shift. I had worked in this gangway since the start. I did not anticipate any danger in crossing the first chamber. Did not think crossing the others safe work. My father and I talked over the matter, and thought our way of working unsafe. It was our work to put in stringers as soon as we had room for them. The mine foreman told us to put stringers in the last breast, but not until we got the coal down. My father and I stood three props on Tuesday and two on Wednesday. Wednesday night I blasted down the slate to make room for the double timbers; the slate was thrown down the breast. The blasts did not loosen the props, as far as I saw. I put the road in—the foreman told me he wanted the road in before we put in the stringers. I said that we would have to take the road up again. The place was safe when I went home Wednesday night. Father called me out of bed Thursday morning, saying that one of the props had fallen, and two other props were unsafe. We cut three new props. The mine foreman came to us and told father that he must secure that place, as it was very unsafe—he did not say how. Father said that we would put in three new props, and make the place safe. We took the props in, and found that one prop had fallen, and that two others were in an unsafe condition. When we reached the face of the gangway, we found a loaded car there, and standing partly on the unsafe props. I don't know whose fault it was that the car was pushed in on the unsafe props. Soon after our arrival the driver came for the car; we moved inside of the car to give the driver room, and stood on the unsafe timber to push the car to start it; while doing this, the props fell from under us, precipitating the three of us into the water below. The laborer and myself were fished out, but I never saw father again. I don't know whether he came to the surface of the water or not. We made a practice of helping the driver to start the car; we were not instructed by anybody to do so. We did not think that the props would fall from under us, but knew they were not very safe. I never told the mine foreman that our way of working was dangerous; I only spoke in that way to father.

Thomas P. Davis testified: I am twenty-four years of age. I am a laborer. Have worked in the mines for fourteen years. Worked in this gangway for four months. I have mined coal, have worked two breasts, but am laboring now; had no experience before in driving gangways. My stepfather, Owens, thought it was safe, or he would not have allowed me to work there. Did not hear Owen Evans tell how to secure the last breast. Don't remember Owen Evans having been there on Wednesday afternoon. He came there every day. We put the timbers in the last breast Tuesday and Wednesday; they were put in safely. Went in on the day of the ac-

cident at seven o'clock; Mr. Owens went in with me. I noticed that there was a prop out. Mr. Owens examined the place, and saw that one prop was out. He went out after a car was brought in. The car stood about six feet from the face. We shoved the car in where we wanted it. He told me to load the car. The mine foreman came in. He looked at the place and said it should be made more secure. He did not tell me not to work there. I told him my step-father had gone for props. I had loaded the car by the time my step-father and Evan Owens, his son, came in. They unloaded the props behind the car. We were talking of the best way to put the props in, when the place went down from under us. We stood between the car and the face. When the driver came in for the loaded car I was not afraid then. The others showed no fear. Did not suppose the props would fall so soon. Heard Owen Evans speak of putting stringers in, but the gangway was not extended far enough for that. I think blasting the top rock injured the props. Had I examined the props, think I would have seen they were not safe.

This is only a part of the evidence taken, but sufficient to explain the reason for the accident. I publish this evidence, and can certify that it is correct, so the public may see all the particulars in this sad case.

Boiler Explosions.

Accident No. 13.—George Krapf, German, fireman, was fatally injured by the explosion of a boiler at Coleraine, No. 1, on the 4th day of March, and died on the morning of the 5th. Deceased was the day fireman during that week at No. 1, where he had been employed at the same work for about seven years. He was considered a good fireman, who paid great attention to the boilers. For some reason, about 10.30 A. M., on that day, when everything was moving smoothly, without any warning whatever, one of the boilers exploded with terrific force, throwing one half of the boiler about two hundred yards southward, while the other part was thrown northward a long distance, crushing through the boiler-house and into a stable, killing a valuable horse. The force of the explosion scattered the walls in all directions, part of which struck deceased with fatal effect.

The boiler was thirty feet long and thirty-four inches in diameter. The thickness of the plate, where it tore apart, was one fourth of an inch, which was the original thickness of the plates. The boiler parted in the fifth sheet, and about twenty two inches from the rivets. In my examination I failed to see anything wrong with the iron, or that the water had been too low, but found a scale of about one sixteenth of an inch on the bottom of the boiler. This scale should not have been allowed to be there. If they were examined as they were reported to me, the examiner neglected his duty, as all these scales should be carefully removed. The evidence in the inquest was very conflicting. I have attached the evidence of the most important witnesses:

JOSEPH GATES, *sworn:*

My name is Joseph Gates; I am forty-four years old; I reside in Beaver Meadow; I am rated as an engineer; my business is to look after the pumps, boilers, and machinery of W. T. Carter & Co., at the Coleraine collieries. It is part of my duties to examine the boilers twice each year, and oftener, if found necessary. I examined the boilers at No. 1 during the latter part of 1885, say from some time in November until the end of the year. I can't say on what date I examined that set of two boilers, one of which exploded on the night of March 3, this year. I make an inspection of boilers and file my report, under oath, with the mine inspector for this district. The mode of inspection that I have followed is to examine the boilers underneath. I brush them off, and if I can see or find anything wrong, have them repaired. Then I go inside with a hammer and sound the boiler. I inspect the boiler for the whole length. I generally do this when we get an opportunity to do so, so as not to interfere with the running of the colliery. I use an ordinary force with the hammer to sound the boilers. I am positive that when I examined those two boilers during the time stated that there was no crack in them, or sign of any burn. I did not examine the top of the boilers on the outside, but I did inside. I considered those two boilers safe. The water-line was above and below the center of the boiler. I did not see any scale in the boilers on the bottom of them. I noticed none that would hurt them. There might be some little scale that I did not knock off. We feed the boilers with spring water. If there is a scale on those two boilers, or any of them now, I can't account for it. Just after inspecting those boilers, I tested the steam-gauge and found that the escape valve blew off steam when the gauge showed sixty to sixty-five pounds. I found that, when the gauge showed sixty to sixty-five pounds, the lever on the escape valves showed ninety pounds. Those two boilers were put in in 1879. I don't know what quality of iron they were, but I heard the boiler-maker, Isaac Sands, say that the iron was No. 4 iron, that measures one fourth of one inch in thickness. They were thirty feet long, and the diameter thirty-four inches. I consider the iron as good. I don't know what quality of iron they were bought for. I have looked at the boiler since the explosion, and I think it is as good as No. 1 iron, unless No. 1 iron is better than I think it is. I do not think, by the looks of the iron, that they have been overheated. About one week after the explosion, I found the feed valve of those two boilers, and it was open. It would not open by the shock of the explosion. The grease, or oil, found on the valves of the hoisting and donkey engines, or part of it, is likely to get into the boilers through or by the exhaust into the heater.

Frederick Zullick, *sworn:*

I reside in Hazleton, Luzerne county; I am thirty-five years of age; I am a boiler-maker by trade; I have followed boiler-making since 1870; I am not officially, or otherwise, a boiler-inspector; I did not see those boilers before to-day, when I examined them carefully. I could not tell of or detect an old crack on any of them, on account of the explosion. I think my experience will enable me to judge of the quality of iron. The boiler which exploded, I think, is not No. 1 iron. I have seen boilers, but not many, made of the same iron. I found the water-line about near the center. I found a scale on the exploded boiler about from one sixteenth to one eighth of an inch thick, on the bottom of the boiler. The effect of this scale would be to require more fire or heat to produce the same amount of steam. I found the scale to cover the bottom of the boiler for about one sixth of the circumference. I did not find the boiler burned. I think if used fairly the boiler would carry sixty pounds of steam with safety. I think the iron now is as good as when put in. I don't think the scale had a tendency to the explosion of the boiler. I can assign no theory or reason for the explosion. I think a scale like this has a tendency to damage the iron of a boiler; the water can't get to the iron and it is liable to burn. It would not be safe to carry ninety pounds of steam, by any measurement that I know of, in those boilers.

George Kay, *sworn:*

I reside at Coleraine. I am employed as fireman at No. 1 colliery, where the boiler exploded on the night of the 3d instant. I have fired there since the 6th of May. I fired fourteen years in England and this country before I came here. I had more water that day than I had for three weeks before. The water never went below the first gauge that I know of; it sometimes dropped below the third gauge. I was there on the day-shift one day last year, before the end, when Mr. Gates went under those two boilers—the boilers were blown out the night before. It was in the afternoon I saw him go under the boilers. I saw him go back the length of the boilers. I stopped at the fire-door until he came out. He was not there alone. He did not go into the boilers. He did not go on top of them. We have not been afraid of the boilers since the two boilers were taken out some time ago. The bridge and side walls of the boilers were poor at that time—the day when Mr. Gates examined them; they were the last set that Mr. Gates examined. That was the last time Mr. Gates examined those boilers. I was there with him all the time during that examination, and he did not go into any of the boilers. He had nothing with him when he went under but a lamp. He did not sound the boilers; he could not sound or take anything with him to sound the boilers without me knowing it; I was looking at him all the time during that examination. He might have been under the boilers at that time from twenty to thirty minutes. I was looking in

at him until he came out. He was looking and examining the boilers while under. The man-head of that set of boilers was not removed on that occasion. I fired those boilers up about four o'clock that afternoon. It was about nine o'clock the night before when the fires were taken out from under those two boilers. I always found Mr. Krapf to be a good, sober, and attentive fireman. I think Mr. Gates is a good and capable man to inspect boilers. I had enough water in those boilers when I left that evening, and he had enough time to keep it up until the explosion took place; there was no scarcity of water. I found the mate to the exploded boiler about one third full, the next day, when the boiler fell from where it was thrown by the explosion.

VERDICT.

Inquisition on dead body of George Krapf.

The undersigned jurors, inquiring into the death of George Krapf, after having viewed the body and hearing the statements and evidence of all the witnesses, find that said George Krapf came to his death from injuries received by the explosion of a boiler at Coleraine colliery, No. 1, on the night of March 3, 1885, the cause of the explosion not known to the jury, and also find that the exploded boiler had not been properly inspected according to law.

NEIL PAUL, STEPHEN E. FARROW,
NEIL MCBRIDE, CONDY BOYLE,
H. H. MCBRIDE, S. P. SMITH,

Jurors.

March 4, 1885.

I certify the foregoing to be a true and correct copy of verdict of jury in above inquisition.

H. MCGARVEY, J. P.,
Acting Coroner.

ACCIDENT No. 18.—Edward McGettigan and James Boyle, Irish, firemen, were killed by a boiler explosion at Yorktown, No. 5, on the 10th day of April.

This was a bad accident, as a great deal of neglect and carelessness were found to exist among the firemen. There were four of them at this place, two on the day shift, and two at night. The men on either shift did not seem to care about anything but to keep enough steam for their respective shifts, caring very little about the boiler or about their own safety. The foreman should have made an effort to find out the reason for this bad feeling existing among the men, and taken prompt measures to remedy it.

The boiler that exploded was thirty feet in length, thirty-four inches in diameter, and originally made of five-sixteenths iron. The boiler was re-

ported examined in January, but I have great doubt of the truthfulness of this report.

If any competent man had examined this boiler, he could not have failed to see the grooves which the acid-water had made in the sheets. I measured the thickness of the sheet that had parted, and found it varying from three sixteenths to five sixteenths of an inch in thickness. Any practical eye could, and should, have detected these grooves if the boiler was cleaned and properly examined.

The conclusion I came to was, that if the boiler was examined, the man who made the examination was utterly incompetent, and that he perjured himself by swearing that he was competent.

I notified the superintendent that all the boilers in No. 6 should be examined by some competent person, as I had no faith in the word or oath of a man that would swear that such a boiler was safe. The boilers were reëxamined by a boiler-maker, who gave them all a general overhauling and reported them safe.

An inquest was held, and the testimony of the main witnesses is here attached, which is very conflicting.

The Commonwealth of Pennsylvania, } ss:
Carbon County, }

In the matter of the inquisition on the dead body of Edward McGettigan, killed by the explosion of a boiler at No. 5 colliery, Yorktown, in said county, and held on the 11th, 18th, and 20th days of April.

Evidence.

Howell Green, *sworn:*

I am fifty-four years of age. My business is superintendent of the Jeansville Iron Works. Am a mechanical engineer by profession, and think I am capable of judging of the quality of iron, and its fitness for certain purposes. I have seen the exploded boiler, and would say that originally the iron was very good. I would consider that from use, being heated and cooled, the iron has materially deteriorated. I measured the thinnest part of the iron, and it is three sixteenths of an inch in thickness. It seems to have been originally five sixteenths of an inch in thickness; one eighth of it is gone. I think a pressure of sixty pounds of steam would be as much as I would recommend for such. My theory of this is, that from some cause the boiler first cracked on the bottom, then extended around the boiler, and by the consequent rush of steam thereto from the other boilers, it parted, each end taking its own direction.

(Signed,) Howell Green.

John S. Boyer, *sworn:*

Am twenty-nine years of age; reside at Yorktown, and have for three years. I have been outside boss at No. 5, Yorktown colliery, between two and three years. It is part of my duty to examine and inspect the boilers

there at least once every six months, and oftener if required. I last examined them between the 12th and 18th of January. Sometimes I examined two, and sometimes four of them at a time. I took a memoranda of my inspection as I proceeded with it, and when I had the whole inspected, I filled out my report. I qualified to my last report before J. A. Smith, justice of the peace, at Audenried.

My mode of inspection has been to sound with a hammer inside and outside, inspect the seams, and then act according to my judgment as to the quality and thickness of the iron. I did it in this way the last time in January. The side and bridge walls were in good order at that time. The boilers were fed by the injector process, which heated the water. I examined the boiler that burst in January. I pronounced it all right. I inspected the seams throughout. I found no parting or space between the iron of the boiler at that time. There is none now that I am aware of. I have examined the parts since, and found no evidence that would lead even to a suspicion that there was a flaw, crack, break, or fracture in any part of the boiler, or that might have been before the explosion. The thinnest part is three sixteenths of an inch. There were two front sheets put on the boiler about one year ago. The fires under the boiler, when intended for inspection, were taken out at night and the steam blown off, and then I examined them the next day.

It usually took me about fifteen or twenty minutes to examine a boiler —I found it pretty warm work while at it. During working hours we carry sixty pounds of steam—our safety-valves blow off at that pressure—we don't carry that pressure at night. Since the explosion, I have reason to suspect that the firemen have or had neglected their duty, but my suspicion is based on hearsay. We worked until seven o'clock on the evening that the boiler exploded. The boiler exploded about half past eight o'clock the same evening. Pure fresh spring water was used in the boilers. Edward McGettigan and James Boyle were on the shift that night as firemen; McGettigan was killed outright by the explosion, and Boyle has since died from the injuries he thereby received. McGettigan was a sober, capable, and intelligent workman; he had worked there as fireman for one year or more. Boyle was considered about the best fireman we had in Yorktown; I always found him right. My theory of the accident is that, at some time since I examined the boiler last, the firemen or some of them allowed, by neglect of duty or some other reason, the boiler to become overheated and weakened, and then it cracked and parted.

(Signed.) JOHN S. BOYER.

HOWELL GREEN, *recalled:*

It looked to me that the crack around the boiler had started or begun at some period before the explosion. The iron appeared as if it had fretted, that is, the fatigue of the iron from heating and cooling and chemical action. An inspector examining in the boiler can hardly tell the tensile

strength of the iron; he ought to be able to tell pretty nearly how thick it was. An inspector would hardly condemn iron three sixteenths of an inch thick. I think a man could inspect a boiler in fifteen minutes, but I would like to have thirty minutes to do it in, and I would like to have the boiler cool and clean to do it in that time.

(Signed,) Howell Green.

John Kenvin, *sworn:*

I am forty-two years of age, an engineer by occupation. Employed at No. 5 colliery, Yorktown, for fifteen years. I think McGettigan was not long enough there to be an efficient fireman. I think Boyle was a good, capable man. Boyle was the oldest hand, and the understanding was, that McGettigan was subject to Boyle's instructions. I have interfered with the firemen when I saw them have the steam above the registered point, the doors shut, and the blower on; I checked Boyle about it. This happened on several occasions, and as late as within two months. On the evening that the explosion took place, Boyle came to me and said that he and McGettigan fell out, and that on the morning before that McGettigan had closed three doors which he (Boyle) had left open when the steam was blowing off, and then went down to the locomotive-house; and Boyle also said to me that McGettigan would blow the place up. Boyle also said at the time that if he had re-opened the doors, McGettigan would fly at him, that is, he would have quarreled with him. I told Boyle to watch him, and speak of it to the boss. I never knew of them to have the water below the bottom gauge, or heard of it. I did not consider McGettigan a safe man in the place. I depended on Boyle for my safety, although McGettigan shared the work with him. Boyle told me that he would not assume the responsibility on the night shift, because of McGettigan. I cleaned this boiler the last time it was examined, and saw nothing wrong with it. That boiler had been put in there new within seven years. It was got, I think, at Allentown.

his
John × Kenvin.
mark.

William Ward, *sworn:*

I am about twenty years of age, a fireman by occupation, at No. 5, Yorktown. Have been employed there nearly one year. I was on the day shift with Charles Gildea. Edward McGettigan and James Boyle were on the night shift. I quit work that day, Friday, April 10, 1885, at five o'clock. McGettigan was there when I left. The water was to the top gauge, and the fires all good. The breaker was to run until seven o'clock. I think now, the pressure might have been seventy pounds or a little over. We usually carried seventy-five, but I believe the steam gauge was light; Mr. Boyer told us so, that the gauge indicated more than we carried. I went to the slope mouth after the explosion and there met a party carrying

McGettigan home. He was dead. That was about fifteen or twenty minutes after the explosion. I went to see Boyle that night; he was scalded and injured by the accident. I think Boyer told us that the steam gauge was four or five pounds light. We carried from sixty to sixty-five pounds pressure at night, and sometimes more when the pump would stop unknown to us. Boyle was the leading fireman on his shift. I regard Charles Gildea as the leading man on my shift.

(Signed,) WILLIAM WARD.

CHARLES GILDEA, *sworn:*

Am thirty-five years of age. Have been employed as fireman at No. 5, Yorktown colliery, about two years. There was one set of boilers blown out and cleaned in the month of January; it was the third set from the door on the west side, neither of which was the boiler that exploded. There was only one set blown off that I know of. The rest of the boilers had previously been examined, probably two months before this set of which I speak. There were more blown off since. The set of boilers, one of which exploded, was examined in December, or at least blown off and cleaned for the purpose of inspection, and not since. The last inspection of boilers was begun in November some time, on the east side; it was the first set next to the engine-house which exploded; it was the first set examined. I am of the opinion that Boyle and McGettigan did not work in harmony as men working together ought to do. Boyle told me that morning that McGettigan had let two of his fires go low, and that he would not feed the boilers, and that he told McGettigan to fix his fires before he would feed them, and that McGettigan went and sat down on the coal and said that he would not be bossed by him or anybody else. I have seen Mr. Kenvin go into the last set which was blown out, but I have not seen Boyer go into any of them. I have heard that the boilers were examined. I have not seen Boyer go into any of them since November. I don't know what set I saw him go into then. He had a hammer with him. I have heard the hands on the other shift say that Boyer had examined the boilers in the day-time. I was the first man to go there after the explosion. I shut three valves on the injector, and found two others open: one on the set that blew up, and one on the set next to them. I found the fires full to the boilers, with the blowers on. I don't believe that the fire under the set that exploded had been pulled at all. It was not past the time when all the fires should have been attended to. I never was afraid of any of the boilers. I had pulled the fire under the next set when I went home, and I found it as I left it when I came back after the explosion. We had fixed one of the night shift fires, the one next to the exploded set, so as to enable the night shift to keep steam, the water being heavy and the breaker to work that night longer than usual. I am positive that the injector used there does and did, as a general thing, feed the water from warm to hot, and almost always hot.

(Signed,) CHARLES GILDEA.

David R. Hughes, *sworn:*

I am thirty-five years of age; a boiler maker by trade; worked at Jeanesville, where I have been employed as a journeyman for four years, and during that time a foreman. I saw the boiler at No. 5, Yorktown, the day after the explosion. I repaired that boiler two years ago last November. I put three new sheets, and about two patches on it. My theory for the explosion is that the boiler had been cracking by the action of the heat, cold, expansion, and contraction; a common thing in the coal region. The cracking takes place gradually. I think, with fair treatment, this boiler should have been safe with a pressure of seventy pounds. I would not consider it safe to operate with a boiler whose thickness was only three sixteenths of an inch, and carrying more than seventy pounds of steam. I have only measured the thickness of the top of the sheet that gave on the exploded boiler, and found it five sixteenths of an inch thick. It was a new sheet that gave. It was over the bridge wall, and by the action of the fire at that point, and the flow of the water to and fro in the boiler, would have the effect of weakening the groove near the bottom of the sheets more on the outside than on the inside sheet.

James E. Roderick, *sworn:*

I am forty-three years of age. Am mine inspector of this district. I examined the bursted boiler at No. 5, Yorktown, and found the thinnest part three sixteenths and the thickest part five sixteenths of one inch in thickness. I am now satisfied that there were only two new sheets put in, and that the old and new sheets were not fairly jointed, and allowed a space for the action of the acid water at the bottom of the sheets and between them. I am satisfied that the sheet that parted was an old one, as there was a great difference in the appearance and thickness of the sheets. I think that the boiler examiner should have detected the grooves, and had this boiler repaired.

Verdict.

We, the undersigned jurors inquiring into the cause of the death of Edward McGettigan, after due and diligent inquiry, and having heard all the sworn testimony, find that the said Edward McGettigan was killed by the explosion of a boiler at No. 5, Yorktown colliery, on the night of the 10th of April, 1885. And we further find that there existed before the explosion a flaw in the said boiler, which should have been detected had the boiler been carefully examined and inspected.

H. H. McBride, *Foreman,*
Frank McFadden,
Nelson T. Hothstein,
John B. Richards,
Fred. Call,
S. P. Smith,
Jurors.

April 20, 1885.

Hugh McGarvey, *J. P.,*
Acting Coroner.

Fatal Accidents by Machinery.

ACCIDENT No. 10.—Charles S. Falk, German, slate picker, was fatally injured by having his leg caught by the monkey rollers at Lansford, No. 4, breaker, on the 9th day of February. For some reason the breaker was stopped for a few minutes; during this time, deceased or some other boy had removed the cover from the rolls, for what reason I could not find out. When the breaker started again, an outcry was made that a boy was caught in the rolls. The breaker was stopped, the boy taken out, and removed to his home. In my investigation I found that the place was ordinarily safe, but very unsafe when the cover was removed. Whether the boy came to his death through his own acts or not, I failed to ascertain, as no boy would give any testimony, except that they saw Falk in the rolls.

ACCIDENT No. 41.—John Metzgo, Hungarian, oiler, aged twenty-one years, was killed by falling into breaker machinery while oiling, at Gowen, on the 16th day of December. This was a peculiar accident, as the place where deceased was caught was considered safe. The rules of this company are that no dangerous parts of the machinery shall be oiled while in motion. It is very hard to continually watch these people. John Metzgo was an intelligent Hungarian, and for that reason was detailed for this work, yet he lost his life while disobeying instructions given to him personally by the breaker-boss.

ACCIDENT No. 32.—Andrew Haas, German, breaker-engineer, aged forty-three years, was found dead near the main shaft at breaker No. 2, Oakdale, on the 5th day of September. Deceased was the regular oiler, and when he was through, he used to call out, "All right," and then the breaker would be started. This day, the screen-boss saw deceased oiling, a few minutes before seven, A. M., and heard him call out, "All right." The breaker was started as usual. Some time afterward, the screen-boss had his attention called to something near the screen, and, upon an examination, to his horror found deceased all doubled up about the shaft. The assistant superintendent and the breaker-boss swore that, since the new law came into effect, they had given strict orders that no parts of the machinery should be oiled while in motion. The verdict of the jury was that deceased came to his death by disobeying these orders.

Miscellaneous Fatal Accidents.

ACCIDENT No. 6.—John McGinley, Irish, miner, aged forty-four years, was killed by a rush of coal in his breast at Highland, No. 2, on the 12th day of January. Deceased had finished this breast some time previous, and a man named Maloney was loading the coal for him. Eventually the battery became empty, owing to the coal being blocked up in the breast. Saturday, prior to the accident, Maloney failed to load his trips, as he failed to start the coal. The afternoon of the same day he notified McGinley of the fact, who answered that he knew the place where it was blocked, and that he would go in with him early Monday morning and start the coal.

On that morning he went in with the laborer. He immediately went up the manway for about twenty yards, then broke a hole through the manway and entered the breast. In a very short time, the laborer, who was at the battery, heard a rush of coal coming down the breast, and was horrified to see McGinley carried past him amidst the coal into the chute below. The rush of coal filled the chute and battery.

Maloney immediately gave the alarm, and, as quickly as possible, opened up the chute board, letting the coal run into the gangway, and in a few minutes McGinley was drawn out dead.

After investigating the accident, I could see that McGinley must have been a good, practical workman, as the chute, battery, and manways showed the work of a master-hand. Yet how he came to make this reckless effort to start the coal I cannot say. If he had considered a little beforehand about what he intended doing, he would have seen in a moment that he could not escape the rushing coal after it had started, as the place was pitching about 50°.

Accident No. 7.—Thomas J. Williams, Welsh, miner, aged thirty-three years, was fatally injured by being struck by a falling prop, at Jeanesville, No. 7, on the 16th day of January, and died the following day.

Deceased and another miner were engaged opening a breast in the Wharton, which had an angle of about 55°. A temporary battery had been put in. This day they had taken in the main battery props; the car was stopped at their place, and while lifting a heavy prop on to a temporary platform, about four feet above the top of the car, deceased slipped and fell into the car, the prop balancing and falling on him. At first he was not considered seriously injured, as he was able to walk home, but soon afterward commenced to vomit blood and died as stated. This is another accident that could have been avoided if the men themselves had taken any precaution by putting planks on top of the car, instead of attempting to lift the prop by main strength.

Accident No. 17.—Frank Boyle, Irish, miner, aged about forty years, was fatally injured by falling into a chute, at Tomhicken, on the 3d day of April, and died in the hospital at Drifton. How deceased fell into the chute is not known, as he was alone at the time. It was a great surprise to all that he should have died, as he was considered only slightly injured, but he must have received internal injuries.

Accident No. 21.—Joseph Contuto, Hungarian, laborer, aged about twenty years, was fatally injured at the Ebervale stripping, on the 21st day of January, and died the next day, at the Drifton hospital. Deceased was employed as picker. While working at the face, the foreman, another Hungarian, called his attention to the fact that a crack could be seen in the bank, and that he should stop picking, go on the bank, and bar it down. He complied with the order, but could not throw the fall down, and consequently went to cut under it a little more; he had only given a few blows when the bank fell with the result as stated.

TABLE No. V.—*A list of accidents resulting in death, in the South district of* *for the year ending*

Number.	Date.	Names of Persons Injured.	Occupation.	Age.	Widows.	Orphans.	Names of Collieries.
1	Jan. 5	Daniel Cambell, . .	Miner, ...	21	. .	}	}
2	5	Peter Cambell, . .	Laborer, . . .	18	. .	}	Upper Lehigh, No. 5, ... }
3	6	Dennis McGuire, .	Helper, ...	14	. .	. .	Council Ridge, No. 2, ...
4	6	Patrick Canahan, .	Miner, ...	75	. .	. .	Yorktown, No. 6, Stripping, ...
5	6	Michael Nask, . . .	Miner, ...	35	. .	. .	Laurel Hill, ...
6	13	John McGinley, . .	Miner, ...	44	1	7	Highland, No. 2, ...
7	16	Thos. J. Williams,.	Miner, ...	33	1	. .	Jeanesville, No. 7, ...
8	16	Michael Kochman,.	Laborer, . . .	23	. .	. .	Council Ridge, No. 2, ...
9	21	Joseph Contuto, . .	Laborer, . . .	21	. .	. .	Harleigh Stripping, ...
10	Feb. 9	Charles F. Falk, . .	Slate picker, .	11	. .	. .	Lansford, No. 4, ...
11	16	John McTaggart, .	Mine boss, . .	38	1	4	Jeanesville, No. 7, ...
12	16	Michael Dougherty,	Miner, ...	. .	. .	. .	Yorktown, No. 6, ...
13	Mar. 4	George Krautz, . .	Fireman, . . .	. .	1	. .	Coleraine, No. 1, ...
14	4	August Mosenti, .	Laborer, . . .	. .	. .	. .	Gowen, ...
15	17	Conrad Deisenroth,	Miner, ...	42	1	4	Hazleton, No. 6, ...
16	20	August Whitebread,	Miner, ...	34	1	3	Council Ridge, No. 5, ...
17	April 3	Frank Boyle, . . .	Miner, ...	35	1	4	Tomhicken, ...
18	10	. . . . .	Fireman, . . .	. .	. .	. .	Yorktown, No. 5, ...
19	10	. . . . .	Fireman, . . .	. .	. .	. .	Yorktown, No. 5, ...
20	11	Joseph Samuels, . .	Helper, ...	13	. .	. .	Harleigh, ...
21	16	Harry Price, ...	Helper, ...	18	. .	. .	Stockton, No. 2, ...
22	17	Alex. Cambell, . .	Miner, ...	40	1	4	Harleigh, ...
23	May 23	Hugh L. Joues, . .	Laborer, . . .	27	. .	. .	Upper Lehigh, No. 2, ...
24	June 4	Josiah Blackell, . .	Laborer, . . .	24	. .	. .	Stockton, No. 5, ...
25	9	Stephen Patch, . .	Driver, ...	17	. .	. .	Mount Pleasant, ...
26	27	Jacob Ulshafer, . .	Miner, ...	53	1	4	Derringer, ...
27	July 28	Barthol Salazer, . .	Miner, ...	28	1	2	Derringer, ...
28	Aug. 1	George Ferko, . . .	Roadman, . .	21	. .	. .	Drifton, No. 2, ...
29	19	Thomas Denneny, .	Miner, ...	29	1	2	Eckley, No. 5, ...
30	13	Evan Owens, ...	Miner, ...	60	1	. .	Tresckow, No. 9, ...
31	27	Patrick McGlynn, .	Miner, ...	38	1	5	Ebervale, ...
32	Sept. 5	Andrew Haas, . . .	Engineer, . .	43	1	4	Oakdale, No. 2, ...
33	23	Anton Pertie, . . .	Miner, ...	22	1	. .	Beaver Meadow, ...
34	25	John McGrath, . .	Miner, ...	37	1	2	Mount Pleasant, ...
35	26	Samuel Curlin, . .	Miner, ...	48	1	5	Hazleton Mine, ...
36	Oct. 1	John Lannon, . . .	Laborer, . . .	24	. .	. .	Lattimer, No. 3, ...
37	16	Michael Lludner, .	Miner, ...	28	1	1	Eckley, No. 5, ...
38	21	Michael Morachu, .	Laborer, . . .	30	1	2	Drifton, No. 2, ...
39	Nov. 24	James Metzgo, . .	Laborer, . . .	20	. .	. .	No. 6 Strippiug, Yorktown, ...
40	Dec. 11	James O'Donnel, .	Miner, ...	36	1	5	Drifton, No. 1, ...
41	16	John Metzgo, . . .	Oiler, ...	21	. .	. .	Gowen, ...
42	29	Joseph Bruisko, . .	Driver, ...	19	. .	. .	No. 6 Stripping, Yorktown, ...
					20	58	

NOTE.—Nationality by birth of persons killed and fatally injured as per table No. 5: Irish, 15; Hungarians, 8; Americans, 5; Welsh, 3; English, 3; Germans, 2; Austrians, 2; Italians, 2; Scotch, 1; Polanders, 1; total, 42.

Luzerne and Carbon counties, Pennsylvania, with remarks on the cause of each, December 31, 1885.

Remarks on the Causes of Accidents.	Explosion of CH4 gas.	Falling of roof and coal.	By mine cars.	Explosion of powder and blasts.	Miscellaneous inside.	Machinery.	Miscellaneous outside.	Totals.	Number.
These two brothers were killed by the same fall of coal and clod near the face of their breast; it seems they went right back after a blast and were caught,	..	1	..	..	..	..	..	1	1
	..	1	..	..	..	..	..	1	2
Killed by a runaway car on the plane; the boy was caught while sitting near bottom,	..	..	1	..	..	..	..	1	3
Killed while drilling a hole, by fall of coal, caused by the thaw,	..	1	..	..	..	..	..	1	4
Killed by fall of clod in the Wharton; deceased and partner were robbing pillars,	..	1	..	..	..	..	..	1	5
Killed by a rush of coal inside of battery, where he had gone to start it,	..	1	..	..	..	..	..	1	6
Fatally injured by prop falling on him; died the next day,	..	..	..	..	1	..	..	1	7
Fatally injured by railroad cars at breaker; died in 6 hours,	..	..	1	..	..	..	..	1	8
Fatally injured by a fall of clay at stripping; died next day at Drifton hospital,	..	..	..	..	..	..	1	1	9
Fatally injured; fell into monkey rolls; died at his home in 8 hours,	..	..	..	..	..	1	..	1	10
Killed instantly by falling into said slope, a distance of 150 yards,	..	..	..	..	1	..	..	1	11
Fatally injured by a fall of coal; . . . . . and died on the	..	1	..	..	..	..	..	1	12
Fatally injured by boiler explosion and died in 5 hours,	..	..	..	..	..	..	1	1	13
Fatally injured by falling out of car while being hoisted; died at Drifton hospital,	..	..	1	..	..	..	..	1	14
Killed by fall of coal in the Mammoth; returned soon after firing a blast,	..	1	..	..	..	..	..	1	15
Fatally injured by fall of coal; deceased was barring it down when it fell; he died next day,	..	1	..	..	..	..	..	1	16
Fatally injured; fell into chute; died the next day at Drifton hospital,	..	..	..	..	1	..	..	1	17
These two men were killed by the explosion of a boiler,	..	..	..	..	..	..	1	1	18
	..	..	..	..	..	..	1	1	19
This boy was fatally injured by falling under the cars; died the same evening,	..	..	1	..	..	..	..	1	20
Fatally injured; caught between car and collar; died in 5 hours,	..	..	1	..	..	..	..	1	21
Killed by fall of clod from the roof, a distance of about 28 feet,	..	1	..	..	..	..	..	1	22
Instantly killed by a fall of coal at face of gangway,	..	1	..	..	..	..	..	1	23
Fatally squeezed by a fall of coal jamming him against a car,	..	1	..	..	..	..	..	1	24
Found dead on the track; fell under mine cars,	..	..	1	..	..	..	..	1	25
Killed by a fall of coal while the same was being secured,	..	1	..	..	..	..	..	1	26
Fatally injured by premature blast; died in few hours at Drifton hospital,	..	..	..	1	..	..	..	1	27
Killed by falling down slope while going to work,	..	..	..	..	1	..	..	1	28
Fatally burned by an explosion of gas, and died next day,	1	..	..	..	..	..	..	1	29
Fell into an old breast and was drowned,	..	..	..	..	1	..	..	1	30
Instantly killed by a fall of coal while robbing a gangway,	..	1	..	..	..	..	..	1	31
Found dead near main shaft in breaker,	..	..	..	..	..	1	..	1	32
Fatally injured by a fall of clod; died next day at Drifton hospital,	..	1	..	..	..	..	..	1	33
Killed by a fall of clod, caused by want of propping,	..	1	..	..	..	..	..	1	34
Killed by fall of coal from pillar, which should have been barred down,	..	1	..	..	..	..	..	1	35
Killed by fall of top coal near face of breast,	..	1	..	..	..	..	..	1	36
Fatally injured by a premature explosion; he died on the 21st of same month,	..	..	..	1	..	..	..	1	37
Killed by a fall of coal caused by the neglect of the miner,	..	1	..	..	..	..	..	1	38
Killed by a fall of coal at said stripping,	..	1	..	..	..	..	..	1	39
Killed by an explosion of a tight cartridge, by ramming into the hole,	..	..	..	1	..	..	..	1	40
Was killed by falling into machinery while oiling,	..	..	..	..	..	1	..	1	41
Fatally injured; was caught between cars,	..	..	1	..	..	..	..	1	42
	1	19	7	3	5	3	4	42	

TABLE No. II.—*A list of non-fatal accidents in the South district of Luzerne and ending De*

Number.	Date.	Names of Persons Injured.	Occupation.	Age	Name of Collieries.
1	Jan. 3	Thomas Terry,	Miner,	46	Upper Lehigh, No. 4,
2	5	George Keisinger,	Carpenter,	27	Hollywood,
3	5	Charles Schraunn,	Miner,	40	Laurel Hill,
4	5	Peter Hugo,	Miner,	43	Hazleton Mine,
5	8	Peter Brogan,	Loader,	45	Lansford, No. 5,
6	9	Henry McNeal,	Loader,	30	Lansford, No. 4,
7	16	Jacob Trask,	Miner,	25	Stockton, No. 2,
8	16	Isaac Schade,	Miner,	27	Cranberry,
9	22	Thomas Griffith,	Miner,	40	Hazleton Mine,
10	22	Peter Tulis,	Laborer,	35	Hazleton Mine,
11	26	James McNulty,	Runner,	18	Tomhicken,
12	Feb. 2	Daniel Thomas,	Driver,	17	Drifton, No. 1,
13	4	John Rosser,	Miner,	39	Treskow,
14	5	David Davis,	Miner,	47	Sugar Loaf,
15	6	Neal Gallagher,	Miner,	43	Pond Creek,
16	7	John Shoolin,	Laborer,	30	Lattimer, No. 2,
17	7	Eugene Julian,	Miner,	25	Lattimer, No. 2,
18	7	Patrick McCoy,	Miner,	35	Sugar Loaf,
19	7	William H. Bainbridge,	Miner,	33	Highland, No. 2,
20	12	Cornelius Canahan,	Miner,	40	Hazleton, No. 6,
21	19	John Bernhardt,	Miner,	38	Cranberry,
22	Mar. 3	H. B. Campbell,	Laborer,	21	Lansford, No. 9,
23	3	Barney Keely,	Miner,	45	Lansford, No. 9,
24	4	William Newton,	Helper,	16	Oak Dale, No. 2,
25	6	John Luina,	Laborer,	30	Laurel Hill strippings,
26	9	Martin Romanski,	Miner,	40	Highland, No. 1,
27	9	Michael Crellin,	Laborer,	18	Highland, No. 1,
28	10	Michael Ryan,	Miner,	34	Hazleton Mine,
29	11	Henry Hall,	Miner,	40	Oak Dale, No. 2,
30	11	Martin Glasgo,	Driver,	20	Hollywood,
31	11	Frank Daylozkia,	Miner,	29	Hollywood,
32	13	Andrew Rusonack,	Driver,	20	Upper Lehigh,
33	13	Phillip Rudolph,	Driver,	21	Drifton, No. 1,
34	13	James Sharp,	Footman,	18	Hazleton Mine,
35	17	James McLain,	Laborer,	60	Lansford, No. 9,
36	24	Robert Derby,	Miner,	50	Lansford, No. 5,
37	24	Henry Haas,	Miner,	49	Stockton, No. 5,
38	April 1	Thomas Doulin,	Timberman,	48	Hollywood, No. 1,
39	3	Andrew Barillo,	Laborer,	38	Beaver Brook,
40	7	John Rowland,	Jig runner,	15	Jeanesville, No. 1,
41	7	George Romano,	Laborer,	24	Stockton, No. 2,
42	15	John Watson,	Fire-boss,	43	Lansford, No. 4,
43	15	Robert Munroe,	Miner,	40	Stockton W., No. 1,
44	15	William Snyder,	Miner,	30	Stockton W., No. 1,
45	16	Wesley Updegraff,	Driver,	24	Gowen,
46	27	Henry Koch,	Laborer,	18	Hazleton Mine,
47	29	Jacob Bergraff,	Miner,	28	Stockton, No. 2,
48	29	John Fleming,	Laborer,	42	Derringer,
49	29	Michael Dugan,	Miner,	30	Harleigh,
50	May 1	John Henish,	Slate picker,	18	Lattimer, No. 3,
51		Harry Morgan,	Laborer,	36	Jeanesville, No. 1,
52	6	Henry Babba,	Laborer,	29	Beaver Brook,
53	7	Michael Williams,	Company man,	45	Sugar Loaf,
54	11	Rich Williams,	Miner,	35	Jeanesville, No. 1,
55	12	Michael Helis,	Driver,	18	Hazleton, No. 3,
56	16	David J. Griffith,	Miner,	30	Lansford, No. 9,
57	20	Samuel Lutz,	Miner,	36	Upper Lehigh,
58	20	Charles Kelberlock,	Slate picker,	12	Hazleton Mine,
59	20	Hugh Dinsmore,	Laborer,	50	Sugar Loaf,
60	20	John Hadley,	Miner,	35	Yorktown, No. 5,

Carbon counties, Pennsylvania, with remarks on the cause of each, for the year cember 31, 1885.

Remarks on Extent and Cause of Accidents.	Explosion of C H4 gas.	Falls of roof and coal.	By mine cars.	Explosion of blasts and powder.	Miscellaneous inside.	Miscellaneous outside.	Totals.	Number.
Severely injured by a fall of coal in his breast,		1					1	1
Injured by a plank falling on him while repairing breaker,						1	1	2
Seriously injured by a fall of clod in the Wharton,		1					1	3
Severely injured on the eye by a piece of coal flying from a pick,					1		1	4
Three ribs fractured by a kick from a mule,					1		1	5
Leg fractured by a rush of coal from battery,		1					1	6
Leg fractured by a rush of coal from battery,		1					1	7
Slightly injured about face and head by a premature blast,				1			1	8
Shoulder dislocated; caught while uncoupling cars,			1				1	9
Arm fractured at the elbow; caught in the same manner,			1				1	10
Fingers fractured; caught while spragging; sent to Drifton hospital,			1				1	11
Fingers fractured; caught under car wheels while spragging; sent to Drifton hospital,			1				1	12
Seriously squeezed between a car and prop while spragging in his own place,			1				1	13
Shoulder dislocated; fell into a hole from the airway,					1		1	14
Arm fractured by a fall of clod,		1					1	15
Foot fractured by a fall of coal; sent to the Drifton hospital,		1					1	16
Severely bruised about head and shoulder; fell into an old breast,					1		1	17
Hands and face burned by gas explosion result of carelessness,	1						1	18
Severely cut on the head by a piece of coal falling from the face,		1					1	19
Struck in the eye by a small piece of coal from a blast, and severely injured,				1			1	20
Severely cut on leg by a piece of coal falling from the side,		1					1	21
Severely bruised and cut by a fall of coal from pillar,		1					1	22
Leg fractured; fell into the chute of his breast,					1		1	23
Leg fractured; run over by a mine car,			1				1	24
Leg fractured by a fall of frozen clay,						1	1	25
Arm fractured; fell from a trestling,						1	1	26
Arm fractured; caught between cars at breaker,			1				1	27
Head cut and shoulder severely bruised by a fall of clod,		1					1	28
Both legs fractured and arm crushed by a fall of coal,		1					1	29
Injured on back and foot by a fall of coal,		1					1	30
Leg fractured by a fall of coal at the face,		1					1	31
Spine severely injured; fell under a mine car,			1				1	32
Thumb taken off; caught while spragging a car,			1				1	33
Collar bone broken; struck by a runaway car on slope,			1				1	34
Leg fractured by a piece of coal falling from a pillar,		1					1	35
Bruised about body and spine by a fall of coal,		1					1	36
Leg fractured by a piece of coal from pillar,		1					1	37
Leg fractured in two places and otherwise injured by the fall of a steam pipe,					1		1	38
Heel fractured by railroad car at breaker; sent to St. Luke's hospital,			1				1	39
Arm fractured; caught between belt and pulley, result of carelessness,						1	1	40
Head, face, and eyes severely injured by a premature blast,				1			1	41
Face and hands burned by an explosion of gas, while making his examination in the morning, the result of gross neglect on his part, which might have proved fatal,	1						1	42
These men were severely burned on head, face, and hands by an explosion of gas; were notified by fire-boss of existence of gas, yet heeded not the warning,	1						1	43
These men were severely burned on head, face, and hands by an explosion of gas; were notified by fire-boss of existence of gas, yet heeded not the warning,	1						1	44
Seriously injured by mine cars; probably his skull is fractured,			1				1	45
Leg fractured while assisting at unloading lumber at breaker,						1	1	46
Foot entirely severed by a fall of coal in the Mammoth,		1					1	47
Collar bone broken by a fall of coal in breast,		1					1	48
Severely injured by a fall of roof,		1					1	49
Arm and leg fractured; caught by belting in breaker,						1	1	50
Severely injured by falling down a chute,					1		1	51
Leg fractured; caught by mine cars,			1				1	52
Nose fractured by a kick from a mule,					1		1	53
Slightly injured by a fall of coal,		1					1	54
Leg squeezed between mine cars,			1				1	55
Shoulders and head severely injured; fell under cars,			1				1	56
Head severely cut by a piece of coal that fell from pillar,		1					1	57
Injured about body; fell in breaker while playing,						1	1	58
Head severely cut; was struck by the lever of the dump,						1	1	59
Badly squeezed by a fall of coal,		1					1	60

TABLE No. II.—

Number.	Date.	Names of Persons Injured.	Occupation.	Age.	Name of Collieries.
61	May 22	John McGlynn,	Miner,	57	Humboldt,
62	26	Solomon Thomas,	Miner,	..	Lansford, No. 3,
63	June 2	Peter Murko,	Miner,	30	Hazleton Mine,
64	3	George Ursohsky,	Miner,	38	Hollywood,
65	4	Josiah Blackwell,	Miner,	24	Stockton, No. 4,
66	6	Patrick Smith,	Slate picker,	11	Nesquehoning,
67	6	Martin Jerofin,	Laborer,	24	Hazleton Mine,
68	9	John Baxter,	Miner,	24	Jeanesville, No. 1,
69	13	Peter Martin,	Driver,	17	Lattimer,
70	15	Joseph McLaughlin,	Spragger,	18	Ebervale,
71	16	John McCalleu,	Door boy,	13	Nesquehoning,
72	16	Peter Kuntz,	Miner,	34	Lansford, No. 9,
73	16	Roger McCoy,	Driver,	16	Hazleton Mine,
74	18	Barney Mundy,	Laborer,	50	Lansford, No. 9,
75	20	John Klechock,	Driver,	22	Oak Dale, No. 2,
76	23	James Sharp,	Door boy,	16	Hazleton Mine,
77	29	Francis Hunkel,	Laborer,	27	Hazleton Mine,
78	30	Paul Dobranski,	Laborer,	22	Mt. Pleasant,
79	July 3	Fred. Young,	Assistant fireman,	42	Mt. Pleasant,
80	3	Joseph Lager,	Miner,	43	Hazleton Mine,
81	7	John Lenko,	Outside laborer,	28	Stockton, No. 2,
82	7	George Dominick,	Miner,	30	Derringer,
83	11	Martin Shistka,	Miner,	28	Gowen,
84	15	Frank Brobst,	Driver,	31	Drifton, No. 2,
85	18	John Shorlin,	Miner,	40	Lansford, No. 6,
86	20	Andrew Ferrins,	Outside laborer,	29	Humboldt,
87	20	Edward Edwards,	Miner,	24	Harleigh,
88	21	Rudolph Flail,	Miner,	50	Hollywood,
89	25	William Tarleton,	Driver,	17	Nesquehoning,
90	25	Arthur Thurlby,	Miner,	28	Sugar Loaf,
91	30	Fred. Schrader,	Laborer,	37	Eckley, No. 5,
92	Aug. 6	Lewis Owens,	Miner,	30	Tresckow, No. 9,
93	8	William White,	Miner,	22	Lansford, No. 6, Shaft,
94	8	Patrick Ward,	Miner,	28	Lansford, No. 6, Shaft,
95	10	John Fairko,	Laborer,	32	Drifton, No. 1,
96	10	James Rhoda,	Miner,	39	Upper Lehigh, No. 1,
97	15	William Ferry,	Miner,	40	Hazleton Mine,
98	17	Dominick O'Donnell,	Laborer,	25	Eckley, No. 5,
99	19	John Denneny,	Miner,	25	Eckley, No. 5,
100	21	Michael Fallon,	Miner,	46	Milnesville,
101	29	William Biglow,	Laborer,	50	Stockton, No. 1,
102	29	John Gallagher,	Miner,	30	Jeanesville, No. 1,
103	Sept. 5	Andrew Dickie,	Laborer,	22	Hazleton Mine,
104	7	Roger Boyle,	Miner,	30	Tomhicken,
105	14	George Schlafosky,	Laborer,	26	Hazleton Mine,
106	14	Thomas H. Richard,	Miner,	35	Stockton, No. 1,
107	15	John Valentine,	Miner,	40	Hazleton, No. 7,
108	18	William C. Airey,	Miner,	25	Stockton, No. 2,
109	19	Andrew Ferry,	Miner,	35	Hazleton Mine,
110	19	William Crooks,	Machinist,	19	Drifton, No. 1,
111	21	Simon Bankison,	Laborer,	41	Derringer,
112	21	John Kwapf,	Slate-picker,	13	Mt. Pleasant,
113	26	George Pollock,	Slate-boss,	20	Lansford, No. 5,
114	29	David A. Davis,	Loader,	28	Lansford, No. 9,
115	30	Leopold Bontholdo,	Miner,	30	Lattimer, No. 2,
116	30	Jacob Matis,	Miner,	35	Upper Lehigh, No. 5,
117	Oct. 3	Simon Nichols,	Miner,	38	Lansford, No. 5,
118	3	Albert Padason,	Miner,	27	Beaver Meadow,
119	3	Frank Brogan,	Miner,	20	Beaver Meadow,
120	6	Nicholas Shade,	Laborer,	22	Stockton, East, No. 1,
121	9	James Brennan,	Miner,	22	Drifton, No. 2,
122	13	John O'Roro,	Laborer,	27	Cranberry,
123	13	Tony Yonkard,	Laborer,	27	East Crystal Ridge,
124	19	Patrick McCook,	Miner,	29	Hazel Brook,
125	19	Conrad Seiple,	Helper,	17	Upper Lehigh, No. 5,
126	20	John Gaydon,	Laborer,	22	Yorktown, No. 5,

Continued.

Remarks on the Extent and Cause of Accidents.	Explosion of C H4 gas.	Falls of roof and coal.	By mine cars.	Explosion of blasts and powder.	Miscellaneous inside.	Miscellaneous outside.	Totals.	Number.
Collar bone fractured; caught between car and prop,			1				1	61
Burned on face and neck by an explosion of gas,	1						1	62
Hand blown to pieces by an explosion of dualin,				1			1	63
Hip dislocated by a fall of coal at stripping,		1					1	64
Seriously injured by a fall of coal,		1					1	65
Leg fractured by falling from breaker steps,						1	1	66
Leg fractured; fell under mine cars,			1				1	67
Squeezed between a car and a prop,			1				1	68
A toe fractured between the bumpers of mine cars,			1				1	69
Seriously injured by falling under a loaded car,			1				1	70
Arm fractured; fell under mine car,			1				1	71
Arm fractured; fell down a manway,					1		1	72
Leg badly cut by mine car; thrown from a mule,			1				1	73
Jaw broken by the tail gate of a car while unloading timber,					1		1	74
Shoulder bruised in a collision of mine cars,			1				1	75
Fell under a loaded car; arm severely squeezed,			1				1	76
Foot squeezed by a piece of coal,		1					1	77
Shoulder blade fractured by being struck by dirt truck,			1				1	78
Leg fractured by a fall of coal,		1					1	79
Wrist fractured; was struck by a piece of coal from battery,		1					1	80
Leg fractured; caught between railroad cars new breaker,			1				1	81
Shoulder blade fractured and otherwise injured by a fall of coal,		1					1	82
Compound fracture of leg by a fall of coal while barring it down,		1					1	83
Leg fractured; fell under mine car,			1				1	84
Severely injured by a rush of gob from an old breast,					1		1	85
Both legs fractured; fell while cleaning breaker,						1	1	86
Leg fractured by a fall of coal,		1					1	87
Scalp injured by a piece of coal falling on it,		1					1	88
Leg fractured; fell under cars,			1				1	89
Foot crushed by a fall of coal,		1					1	90
Two ribs fractured; struck by a piece of coal rolling down slope,					1		1	91
Severely injured by a fall of clod while in the act of barring it down,		1					1	92
Hip bone fractured by a fall of rock from side of shaft,		1					1	93
Severely bruised about hips and back by the same fall,		1					1	94
Seriously burned by an explosion of powder,				1			1	95
Leg fractured by a fall of coal,		1					1	96
Slightly injured by a fall of coal,		1					1	97
Severely injured by a fall of dividing slate,		1					1	98
Severely burned by an explosion of gas,	1						1	99
Seriously injured by a fall of coal while retimbering a gangway,		1					1	100
Collar bone fractured; fell from a car near breaker,						1	1	101
Severely injured by a fall of clod,		1					1	102
Seriously injured; fell under car on dirt bank,			1				1	103
Seriously injured; struck by flying fragments from premature blast,				1			1	104
Foot severely cut by a timber truck running over it,			1				1	105
Leg fractured by timbers falling against it,					1		1	106
Arm fractured while riding up the slope on a car,			1				1	107
Foot fractured by a rush of coal at battery,		1					1	108
Cut on shoulder by a small piece of coal falling from roof,		1					1	119
Leg fractured, and otherwise injured by locomotive jumping the track,			1				1	110
Arm fractured; struck by a piece of coal from side of gangway,		1					1	111
Collar bone fractured; he slipped and fell in breaker,						1	1	112
Arm crushed; caught in monkey rolls,						1	1	113
Leg and arm fractured; was caught by a rush of coal at battery,		1					1	114
Cut on shoulder by a piece of coal that fell from pillar,		1					1	115
Leg fractured by a fall of coal,		1					1	116
Seriously injured by a fall of fire-clay,		1					1	117
These two men were burned by an explosion of powder, caused by the carelessness of Podason, who had his lamp too near powder keg while making a cartridge; the air carried a spark from his lamp to keg,				1			1	118
				1			1	129
Left arm blown off by a premature blast, and otherwise seriously injured,				1			1	120
Slightly burned by an explosion of gas; caused by gross carelessness,	1						1	121
Injured seriously by a fall of coal near face of gangway,		1					1	122
Fell from a car while riding up slope, and seriously injured,					1		1	123
Leg fractured by a piece of coal rolling against it,		1					1	124
Caught between car bumpers, and seriously injured,			1				1	125
Leg fractured by a piece of coal rolling against it,		1					1	126

TABLE No. II.—

Number.	DATE.	Names of Persons Injured.	Occupation.	Age.	Name of Collieries.
127	20	Michael Mooney,	Miner,	26	Nesquehoning,
128	21	John Mundie,	Miner,	40	Jeanesville, No. 8,
129	30	James Zingston,	Laborer,	27	Screen Building,
130	Nov. 4	Michael Boyle,	Driver,	25	Hazle Brook,
131	6	John Carter,	Miner,	31	Milnesville,
132	9	Patrick Brady,	Miner,	30	Jeanesville, No. 1,
133	10	George Rabe,	Laborer,	40	Hazleton Mine,
134	10	Joseph Matting,	Laborer,	24	Harleigh,
135	16	Samuel Wyatt,	Timber-man,	41	Tomhicken,
136	16	James Campfer,	Helper,	17	Oakdale, No. 2,
137	17	Joseph Williams,	Miner,	30	Jeanesville, No. 4,
138	18	Michael Lzaba,	Topman,	33	Mt. Pleasant,
139	19	Andrew Kollar,	Laborer,	25	Harleigh,
140	19	August Wollenhoth,	Laborer,	40	Ebervale,
141	20	Otto Pollock,	Miner,	29	Highland,
142	21	Henry Hawks,	Miner,	30	Hazleton, No. 3,
143	23	Henry Hopit,	Miner,	27	Oakdale, No. 2,
144	27	Edward Edwards,	Miner,	33	Jeanesville, No. 4,
145	Dec. 1	David Evans,	Driver,	16	Hazleton, No. 6,
146	8	Patrick McAlarney,	Laborer,	27	Tomhicken,
147	9	John J. Johnson,	Engineer,	40	Drifton, No. 1,
148	9	James Cornue,	Laborer,	35	Hazleton Mine,
149	14	Patrick Lannon,	Miner,	42	Milnesville,
150	14	John Flinn,	Laborer,	45	Derringer,
151	16	Patrick Morley,	Driver,	17	Oakdale, No. 1,
152	21	John Moy,	Miner,	28	Crystal Ridge,
153	21	William Henne,	Miner,	35	Jeanesville, No. 4,
154	26	Patrick Boyle,	Door-boy,	14	Eckley, No. 5,
155	27	Charles M. Kreitz,	Laborer,	16	Lansford, No. 4,
156	30	Barney Hoy,	Miner,	67	Jeanesville, No. 4,
157	31	Valentine Ehner,	Driver,	16	Hollywood,

Nationality by birth of persons injured as per table No. 6: Irish, 43; Germans, 27; Hungarians, 24; English, 13; Welsh, 16; Americans, 14; Polanders, 6; Austrians, 5; Scotch, 2; Italians, 2; Swedes, 1; total, 153.

Continued.

Remarks on the Extent and Cause of Accidents.	Explosion of C H4 gas.	Falls of roof and coal.	By mine cars.	Explosion of blasts and powder.	Miscellaneous inside.	Miscellaneous outside.	Totals.	Number.
Seriously injured by a fall of coal; he was sent to Philadelphia hospital,	. .	1	. .	. .	. .	. .	1	127
Ribs fractured, and otherwise injured by a fall of coal,	. .	1	. .	. .	. .	. .	1	128
Leg cut off; was caught between bumpers of railroad cars near breaker,	. .	. .	1	. .	. .	. .	1	139
Severely injured while coupling cars,	. .	. .	1	. .	. .	. .	1	130
Eye injured; was struck by a small piece of coal from a blast,	. .	. .	. .	1	. .	. .	1	131
Thigh fractured by a fall of coal,	. .	1	. .	. .	. .	. .	1	132
Leg badly lacerated by a car running over it,	. .	. .	1	. .	. .	. .	1	133
Arm fractured and leg injured by a fall of clod,	. .	1	. .	. .	. .	. .	1	134
Collar bone fractured, and otherwise injured by a falling sill,	. .	. .	. .	. .	1	. .	1	135
Leg injured, causing amputation; was caught between mine cars,	. .	. .	1	. .	. .	. .	1	136
Seriously injured by a premature blast,	. .	. .	. .	1	. .	. .	1	137
Burned by an explosion of barrel of car oil; caused by the insertion of red-hot poker,	. .	. .	. .	. .	. .	1	1	138
Leg fractured by a fall of clod,	. .	1	. .	. .	. .	. .	1	139
Severely injured; caught by car on slope,	. .	. .	1	. .	. .	. .	1	140
Leg fractured by a fall of coal,	. .	1	. .	. .	. .	. .	1	141
Squeezed by a rush of coal in chute,	. .	. .	. .	. .	1	. .	1	142
Seriously injured by a fall of coal,	. .	1	. .	. .	. .	. .	1	143
Back severely injured by a fall of coal,	. .	1	. .	. .	. .	. .	1	144
Foot badly injured; caught under a mine car,	. .	. .	1	. .	. .	. .	1	145
Leg fractured by a fall of coal and rock,	. .	1	. .	. .	. .	. .	1	146
Arm fractured by a fall of slate while removing pump,	. .	1	. .	. .	. .	. .	1	147
Leg fractured and head injured by a fall of coal,	. .	1	. .	. .	. .	. .	1	148
Severely injured by a blast; Lannon going back before the blast exploded,	. .	. .	. .	1	. .	. .	1	149
Leg fractured by a prop falling against it,	. .	. .	. .	. .	1	. .	1	150
Leg badly injured by a car wheel running over it,	. .	. .	1	. .	. .	. .	1	151
Toes crushed by a fall of coal,	. .	1	. .	. .	. .	. .	1	152
Leg bruised, and otherwise injured by a fall of coal,	. .	1	. .	. .	. .	. .	1	153
Seriously injured; was caught by mine car that jumped the track,	. .	. .	1	. .	. .	. .	1	154
Arm fractured by a piece of frozen coal falling on it while cleaning chute,	. .	. .	. .	. .	. .	1	1	155
Severely injured by a fall of coal,	. .	1	. .	. .	. .	. .	1	156
Fell under mine car and seriously injured,	. .	. .	1	. .	. .	. .	1	157
	7	63	44	12	17	15	158	

TABLE No. III.—*Number of each Class of Employés in the Fourth district, during the year 1885.*

NAME OF COLLIERY.	NUMBER OF EMPLOYEES INSIDE.											NUMBER OF EMPLOYEES OUTSIDE.											Grand totals, inside and out.
	Mine bosses.	Engineers and pumpmen.	Miners.	Miners' laborers.	Men timbering.	Road and repairmen.	Drivers and car runners.	Men at top and bottom of slopes or planes.	Oilers and door-boys.	Men employed at other work, if any.	Total inside.	Breaker and screen bosses.	Hoisting and pumping engineers.	Firemen.	Machinists.	Carpenters and blacksmiths.	Breaker men in all capacities.	Drivers.	Slate pickers.	Teamsters, choppers, stable bosses, &c.	Super'ts, assis't supt's, clerks, and book-keepers.	Total outside.	
A. Pardee & Co.,	16	8	424	186	43	28	80	26	21	9	841	26	60	33	8	51	216	8	889	31	9	831	1,672
Coxe Bros. & Co.,	8	33	636	331	101	94	102	22	57	150	1,534	15	24	35	20	62	179	7	463	32	23	860	2,394
Lehigh Coal and Navigation Co.,	6	6	382	94	107	23	99	24	52	148	948	21	31	40	3	25	219	48	319	24	3	733	1,681
Linderman, Skeer & Co.,	8	18	229	171	27	14	55	21	19	6	568	6	12	18	9	30	151	11	229	158	11	634	1,202
G. B. Markle & Co.,	4	13	341	36	. .	19	58	18	51	. . .	541	8	9	12	4	20	80	10	150	20	16	329	870
Upper Lehigh Coal Company,	5	10	135	125	. .	7	36	15	18	3	354	10	10	13	5	14	46	6	109	9	9	231	585
J. Leisenring & Co.,	2	9	189	183	. .	13	62	19	21	6	504	2	10	10	1	8	76	5	139	10	11	272	776
J. C. Haydon & Co.,	3	3	123	128	. .	9	63	10	16	15	375	9	8	16	4	3	37	10	86	10	10	198	573
Pardee Bros. & Co.,	3	6	80	29	15	4	20	8	8	8	181	6	5	5	1	12	47	6	135	6	9	232	413
G. H. Myers & Co.,	4	5	47	139	10	6	30	7	4	6	258	6	8	9	2	10	11	10	96	4	3	159	417
Pardee Sons & Co.,	3	. .	94	63	4	7	23	9	7	. . .	206	4	13	7	. .	3	52	2	105	5	4	200	406
Ebervale Coal Company,	2	6	64	17	12	4	21	9	. . .	6	141	3	4	15	2	4	39	5	67	22	10	171	312
William T. Carter & Co.,	2	7	59	53	2	5	32	10	4	. . .	179	3	7	8	1	7	26	11	72	2	4	141	320
Miscellaneous companies,	10	20	397	299	17	31	83	53	36	75	1,021	24	41	44	9	53	344	24	502	26	28	1,095	2,116
Men at stripping and other work,	. .	. .	. . . .	. . . .	. .	. . .	. . .	. . .	. . .	. . . .	. . . .	. . .	. . .	. .	. .	. . .	. . . .	. .	. . . .	. . .	. . .	. . . .	487
	76	144	3,205	1,959	338	264	764	251	314	432	7,651	143	242	265	69	312	1,523	163	2,861	359	150	6,086	14,224

TABLE No. V.—*Gives the total number of tons of coal mined in the Fourth district, number of days worked, ratio of coal mined per day, number of employés, number of persons killed and injured, ratio of coal mined per person killed and per person injured, number of kegs of powder used, for the year 1885.*

NAMES OF COLLIERIES.	Total production of each colliery for the year 1885, in tons.	Number of days worked.	Ratio of coal mined per day, in tons.	Number of employees.	Number of fatal accidents.	Ratio of coal mined per fatal accident.	Number of non-fatal accidents.	Ratio of coal mined per non-fatal accidents.	Number of kegs of powder used.
A. Pardee & Co.,	530,806	182.2	2,913	1,672	3	176,935	36	14,744	7,827
Coxe Brothers & Co.,	893,487	245	3,646	2,394	9	99,276	17	55,558	21,069
Lehigh Coal and Navigation Company,	598,905	234	2,559	1,681	1	598,905	22	27,223	5,004
Linderman, Skeer & Co.,	440,552	220	2,001	1,202	2	220,276	14	31,468	6,151
G. B. Markle & Co.,	397,553	167.7	2,369	870	2	198,776	10	39,755	7,809
Upper Lehigh Coal Company,	373,491	220.5	1,694	585	3	124,497	6	62,249	7,541
J. Leisenring & Co.,	409,937	239	1,715	776	5	81,987	6	68,323	6,559
J. C. Haydon & Co.,	245,126	220	1,114	573	2	122,563	11	22,284	4,193
Pardee Brothers & Co.,	216,281	173 3	1,248	413	1	216,281	6	36,047	3,300
G. H. Myers & Co.,	189,193	200.5	946	417	6	31,532	2	94,596	5,538
Miscellaneous Companies,	1,240,212	192.7	6,436	3,174	8	155,026	28	44,293	24,640
Men at strippings and other work,	.....	....	.....	487	....	.....	....	.....	.....
Totals,	5,535,543	208.6	26,536	14,224	42	131,798	158	350,035	99,631

FIFTH DISTRICT.

OFFICE OF INSPECTOR OF MINES,
GIRARDVILLE, PA., *March 13, 1886.*

To Hon. J. SIMPSON AFRICA, *Secretary of Internal Affairs:*

SIR: In compliance with the provisions of an act of the General Assembly of this Commonwealth, entitled "An act to provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania, and for the protection and preservation of property connected therewith," approved June 30, A. D. 1885, I have the honor of presenting herewith the annual report of the Fifth inspection district of Schuylkill.

My term of office as inspector of the Fifth district commenced on the 22d day of September, 1885. The previous part of the year was under the care of my predecessor, Mr. Robert Mauchline, and under the head of fatal and non-fatal casualties, and the causes relative thereto, is a report for the whole year.

The accompanying tables will show their usefulness in connection with the annual report to all concerned in the working and mining of anthracite coal, and a careful perusal and analysis of them will not fail to elicit from the reader acquainted with the dangers attending the mining of coal that some of the accidents at least should not have occurred.

Referring to table No. 4, we have the fatal and non-fatal casualties for five years, and in proof of what has been already stated, it would not be too much to say that the deaths resulting from explosions of blasting material, crushed by mine cars, coal flying from shots, premature explosions, are the result of absolute carelessness on the part of the workmen themselves.

The accidents resulting from falls of coal and roof, as shown in table No. 4, are indeed very high in number, and some of these could also have been avoided. We feel sorry to have to report that men lose their lives in using blasting material by an imprudent use of it, who will, in the absence of those having authority over them, fill cartridges with their lamps on their heads, choosing to take the risk of a spark from the lamp falling into their keg of powder, rather than remove it a distance of five feet from them as prescribed by the mine law.

We have also the unpleasant duty to report one death, from being struck with coal flying from a shot, and it is somewhat astonishing that men will stand so near to a blast, rather than retreat to a place of safety, and in many cases do not intimate to their fellow-workmen that they are going to fire.

Premature explosions are generally the result of undue care of those preparing to blast; it may be a hole is very irregularly drilled, and sometimes the cartridge is made too large; in either case, there is difficulty in getting the charge to the back of the hole, and the man charging will try to force back the powder; in doing so the cartridge bursts, scattering the powder all along to the mouth of the hole. With lamp in hand, the miner makes an examination, which has, in some cases, ignited the particles of powder, causing a premature explosion. We have also instances of men driving the needle to the back of the hole, until the needle has been turned or bent by coming in contact with the coal, and how often is it said in using the safety squib, "I always take a bit off the match." The law provides that the miner shall have his needle pointed with at least six inches of copper, as a means of preventing premature explosions, but very few indeed have complied with its requirements, and it is with difficulty that the workmen generally will comply with the spirit of the law, unless some one having authority is constantly with them. These few months' experience as mine inspector compels me to make the statement with only one end in view, that it may be the means of preventing accidents in the future, hoping that those working in and about the mines will see to it that the law is not trampled on by them.

Accidents resulting from being crushed by mine cars are getting to be a more prolific source in adding to the numbers of fatal and non-fatal casualties, in connection with mining of coal in this district, than from explosions of fire-damp.

We find men voluntarily facing death, and even those not engaged with the transportation department of a colliery getting on top of loaded cars to ride out the gangway; also standing on the bumpers and between the cars, getting on the high side of gangway when cars are passing in and out, instead of standing on the low side, where there is plenty of room for all purposes, and unhappily we have periodically to report a fatal accident the result of such practices.

These I have enumerated, knowing them to be true from practical experience, hoping the officers in charge will exercise strict discipline in the future, to prevent accidents from such sources and from whatever cause, and that the workmen themselves will discontinue the practice of taking risks they are not called upon to do, and to understand that the law is a protection against the workman himself.

I would here suggest that, in my opinion, if the Commonwealth would publish, say three hundred copies of the annual report to be given to each inspector for distribution to the bosses and reading workmen in his district, it would augur well for the future success in reducing the number of accidents.

William Stein,
Mine Inspector.

TABLE No. I.—*Comparative statement of fatal and non-fatal casualties for the years 1884 and 1885.*

Fatal Casualties.

	Years.	
	1884.	1885.
Explosions of fire-damp,	2	4
Suffocated by gas,	.....	.....
Explosions of blasting material,	6	5
Premature explosions,	.....	.....
By coal flying from shots,	.....	1
Falls of coal and roof,	20	25
Crushed by mine cars,	8	4
By machiney underground,	.....	.....
By machinery on surface,	1	1
Breaking of ropes and chains,	.....	.....
Falling down shafts and slopes,	4	3
Explosions of boilers,	.....	2
Miscellaneous,	2	8
Totals,	43	53

Number of Fatal Accidents and Amount of Coal Produced per Life Lost.

	No. of fatal accident.	Tons of coal mined per fatal accident.
Philadelphia and Reading Coal and Iron Company,	22	130,559
Lehigh Valley Coal Company,	6	76,801 $\frac{8}{10}$
Lehigh and Wilkes-Barre Coal Company,	1	392,734
Individual firms,	24	39,757 $\frac{8}{10}$

TABLE No. II.—*Non-fatal casualties.*

	Years.	
	1884.	1885.
Explosions of fire-damp,	26	9
Suffocated by gas,		
Explosions of blasting material,		
Premature explosions,	11	2
By coal flying from shots,		4
Falls of coal and roof,	47	29
Crushed by mine cars,	23	17
By machinery underground,		1
By machinery on surface,	3	3
Breaking of ropes and chains		1
Falling down shafts and slopes,	7	2
Explosions of boilers,	1	2
Misce laneous,	20	35
Totals,	138	105

TABLE No. III.—*Showing the amount of coal produced and shipped during the years 1884 and 1885 respectively.*

	Years.	
	1884.	1885.
Amount of coal shipped,	4,246,849.08	4,493,040.11
Amount of coal produced,	4,512,800.07	4,781,517.14

TABLE No. IV.—*Comparisons between the years 1884 and 1885.*

	Years.	
	1884.	1885.
Number of persons employed,	14,884	15,151
Tons of coal produced per life lost,	104,948.18	90,217 $\frac{3}{10}$
Ratio of employés per lives lost,	346 $\frac{1}{7}$	285 $\frac{8}{10}$
Number of tons mined per each personal injury,	37,701.09	30,262 $\frac{7}{10}$
Average number of tons mined per employé,	303 $\frac{8}{10}$	315 $\frac{5}{10}$
Ratio of employés per each personal injury,	82 $\frac{8}{10}$	95 $\frac{9}{10}$

TABLE No. V.—*Taking the death rate per thousand as a basis of comparison between the different companies and individual operations, we have the following ratio for the year 1885.*

	Number of employés.	Number of deaths.	Death rate per thousand.
Philadelphia and Reading Coal and Iron Co,	8,958	22	2.45
Lehigh and Wilkes-Barre Coal Company,	954	1	0.95
Lehigh Valley Coal Company,	1,517	6	3.95
Individual firms,	3,722	24	6.46
Totals,	15,151	53	3.49

TABLE No VI.—*Comparative statement of fatal and non-fatal casualties and their causes for five years.*

Fatal Casualties.

	Years.					Totals for five years.	Aggregate.
	1881.	1882.	1883.	1884.	1885.		
Explosions of fire-damp,	1	6	6	2	4	19	
Suffocated by gas,	2	1				3	
Explosions of blasting material,	2		2	6	5	15	
Premature explosions,		1	6			7	
By coal flying from shots,		1			1	2	
Falls of coal and roof,	16	14	14	20	25	89	
Crushed by mine cars,	9	7	8	8	4	35	
By machinery underground,							
By machinery on surface,	1	2	4	1	1	9	
Breaking of ropes and chains,							
Falling down shafts and slopes,		3		4	3	10	
Explosions of boilers,	1		3		2	6	
Miscellaneous,	2	5	3	2	8	20	
Totals of the respective years,	34	40	46	43	53		216
Non-fatal casualties:							
Explosions of fire-damp,	15	18	22	26	9	90	
Suffocated by gas,		2				2	
Explosions of blasting material,		2	5			7	
Premature explosions,	4	1	5	11	2	23	
By coal flying from shots,	2	3	5		4	14	
Falls of coal and roof,	68	57	42	47	29	243	
Crushed by mine cars,	42	38	26	23	17	146	
By machinery underground,	1				1	2	
By machinery on surface,	4	6	3	3	3	19	
Breaking of ropes and chains,					1	1	
Falling down shafts and slopes,		2		7	2	11	
Explosions of boilers,				1	2	3	
Miscellaneous,	13	38	26	20	35	132	693
Totals of the respective years,	149	167	134	138	105		693

TABLE No. VII.—*Comparative statement of casualties, tonnage, and employés for five years in Fifth inspection district, or Mahanoy mining division, of Schuylkill.*

YEAR.	Killed.	Injured.	Total.	Total number of employees.	Number of employees to each casualty.	Total number of tons of coal mined.	Number of tons of coal mined to each fatal casualty.	Number of tons of coal mined to each non-fatal casualty.	Ratio of tons of coal to each casualty.	Number of tons of coal mined to each employee.
1881, ...	34	149	183	10,911	59.65	4,504,624.06	132,488.01	30,332.02	24,615.02	412.01
1882, ...	40	167	208	12,361	59.75	4,661,024.12	116,525.02	27,910.01	22,517.00	377.09
1883, ...	59	134	180	13,399	74	4,854,724.19	103,292.00	36,229.00	26,821.10	366.10
1884, ...	46	138	181	14,884	82.30	4,512,800.07	104,948.18	32,701.09	24,987.06	303.01
1885, ...	43	105	158	15,151	95.90	4,781,517.14	90,217.30	45,538.20	30,262.70	315.59
Total, ...	216	693	909	66,706	371.50	23,251,689.58	547,470.51	172,710.32	129,202.88	1,773.83
Average, ...	43.20	138.60	181.80	13,341.20	74.30	4,650,337.91	109,494.10	34,542.06	25,840.57	354.76

Descriptive Record of Fatal Accidents.

September 30. Nicholas Wildschock, a laborer, at Ellangowan colliery, was fatally injured in attempting to couple cars while in motion, and died in a few hours after the accident occurred.

October 9. James Bartlett, a miner, at North Laurel Ridge colliery, was fatally injured by a fall of the overlying benches of coal, and died six hours after the accident. Deceased and his butty, Charles Burchill, were working at what is called robbing pillars; they were both drilling a hole in the bottom bench when a piece of overhanging coal fell.

At this colliery the coal is all got from robbing, and, as a matter of course, the gradual subsidence going on is more effective in fracturing off wings of coal than when constructing a colliery, and when examining the place of the accident, I advised the necessity of the workman blasting down the wings of coal rather than take the risk of working under them, which, if done, would be the means of saving many lives.

October 30. Patrick O'Donnell, a gangway laborer, at Buck Mountain colliery, was instantly killed by a fall of top slate at face of gangway.

In making my examination of the surroundings after the accident, I came to the conclusion that the miner in charge of the shift was not a competent workman, because the top was very much dislocated, which ought to have suggested to the mind of an experienced miner the necessity of securing the top by putting up timber.

November 7. John Morning, a miner, at Suffolk colliery, was killed instantly by a fall of the top benches of coal. Deceased had fired a shot in the bottom bench and was barring out coal which the shot had shattered, and the overlying benches fell on him. In examining the place where he was killed, I found the coal very slippery, and to a careful experienced

miner but little examination was necessary to determine that it was unsafe to do as this man did.

November 17. George Betteler, a starter, at Boston Run colliery, was fatally injured by a fall of coal at battery, caused by a large piece of coal knocking out battery prop; his injuries proved fatal eight hours after the accident.

December 10. Paul Wiseman, a gangway laborer, at Schuylkill colliery, was instantly killed by a fall of top coal at face of gangway. I made the necessary examination relative to the cause of the accident. Patrick McCarty, the miner on the shift previous to the morning the accident occurred, should have stood double timber, which was supplied him when he commenced his shift. Instead of doing so, he continued cutting coal, and at the finish of his night's work the gangway face was sixteen feet in advance of the double timber. Henry Warning, the day shift miner, found it necessary to stand timber and commenced his day's work in making the necessary arrangements, and while deceased was cutting a leg hole, five tons of coal fell on him. The jury rendered a verdict against McCarty and Warning as being responsible for the death of Paul Wiseman.

December 18. James Charles, a loader, at Park, No. 3, slope, was instantly killed by being run over with the cars on slope track. Deceased was standing at the upper lift while the cars were being hoisted from the lower lift with ten men on; he attempted to get on the cars as they passed, and was dragged a distance of forty feet before he could be extricated.

IMPROVEMENTS AT COLLIERIES.

Girard Colliery.

A two (2″) gas pipe line, nine hundred and fifty feet long, has been laid from the Girard estate pipe line to the colliery stable, supplying the mules with water.

West Rear Ridge.

A new gunboat tower at head of hoisting slope is still under construction. A new nest of four boilers, thirty feet long by thirty-four inches diameter, with blowers and all fixings complete, has been erected. A new frame boiler-house, $55' \times 19'$, with sheet iron roof, built over above boilers. A line of 5″ cast pipe, four hundred and ninety-three feet long, has been put in position, carrying steam from the boilers south of breaker to slope engines. New frame stable, $53' \times 51\frac{1}{2}' \times 14'$, has been built. The hoisting slope on the Mammoth vein is being retimbered and repaired, and the cages in use on the slope are to be replaced by gunboats. The pump slope on the Primrose vein has been retimbered, and is now in good condition. The steam pipe way on the Primrose vein has been retimbered with white oak timber from the first lift to the surface, and is now in good condition.

Hammond Colliery.

A No. 9 Cameron feed pump and a No. 100 Allison & Bannan feed pump

MAHANOY PLANE, SCHUYLKILL COUNTY, PA.

have been put in position at the boilers near the slope. A new frame boiler-house, 52′×22′×10½′, has been built. Six 4,000-gallon tanks have been erected to receive water from the Girard estate reservoir. A steam heater, twelve feet long and twenty inches diameter, has been placed at bottom of slope, supplying heat to the men employed in that locality. A new airway, one hundred and five and two thirds yards long, has been driven from the Holmes vein, west gangway, to the surface. Also a new airway, eighty-one and two thirds yards long, and a shaft ten and two thirds yards deep, has been driven from the Holmes vein, east gangway, to the surface.

Conner Colliery.

The trestle at the head of dirt plane, sixty-four feet long and sixteen feet wide, has been rebuilt.

Schuylkill Colliery.

Put in breaker, one set of elevators, and one stove coal screen.

North Mahanoy Colliery.

Breaker extensively repaired during the year 1885. Put in picking tables in breaker. A new frame carpenter and blacksmith shop, 25′×50′, with sheet-iron roof, has been erected. Also a new frame powder-house, 10′×12′. During the year, a tunnel was driven from third lift, south gangway, north Seven-Foot slope to the Skidmore vein, cutting the vein at fifty-four and two thirds yards, showing the following section:

Bone and coal,	2′	7″
coal,	6′	4″
	8′	11″ dip, 13° west.

Gangways have been driven north and south, and an air-shaft, sixty-five feet deep, was sunk to the bottom split of the Mammoth vein water level, west gangway.

Mahanoy City Colliery.

Breaker has been thoroughly overhauled and remodeled. Put in forty-two picking chutes, fifty-four picking tables, forty slate chutes, and one hundred and eight telegraphs; also covered lump coal chutes with roofing-iron. In the Holmes vein, north dip, lower lift, east gangway, breast 28 is now being driven up center of basin, and has reached a distance of four hundred and thirty yards, it may possibly be used for a plane.

Tunnel Ridge Colliery.

Nothing done but pumping water all year.

Mahanoy Jig-House.

A new frame addition to jig-house, 140′×35′, with sheet-iron roof, has been erected. One set of dirt scrapers on north side of jig-house has been erected, and also one set of dirt scrapers on south side, one hundred and seventy-five feet long, with eighty-seven scrapers.

Two boilers, thirty feet long and thirty-four inches diameter, with blowers and water and steam connections complete, have been erected, and frame addition to boiler-house, 12′×75′, with sheet-iron roof.

St. Nicholas Colliery.

Nothing done but pumping water during the year.

Suffolk Colliery.

In West Diamond gangway an airway, one hundred and fifty-one and two thirds yards has been driven. In West Primrose gangway an airway has been driven ninety-two yards long.

Bear Run Colliery.

A set of dirt scrapers have been put in at breaker, one hundred and ten feet long, with 16″ buckets and troughs complete; one set of elevators, forty-three feet high, 18″ buckets; one frame elevator house, 20′×16′; one single dirt trestle erected, two hundred and ninety-two feet long, ten feet wide, and forty feet high. A cribbing has been constructed at south end of breaker, seventy-five feet long and eighteen feet high. Also erected a new frame boiler-house, 87′×50′; one set of slush scrapers on above trestle two hundred and ninety-two feet long, with troughs, pulleys, &c., complete.

A new plane in Seven-Foot vein, west gangway, ninety yards long, was constructed with all machinery complete. A tunnel from Buck Mountain vein, plane level, to Seven-Foot vein is in course of construction, and is now sixteen yards.

Gilberton Colliery.

One new 9″×38″ steam pump was put in upper lift, one new 9″×38″ steam pump was put in lower lift, one new 9″×38″ steam pump was put in at furnace gangway bore hole. Pump not yet in use. Breaker repaired. Chutes and picking tables put in. New frame lamp-house, 10′×12′, erected. A tunnel from Buck Mountain vein, lower lift, was driven north twelve yards to back vein. Furnace slope was completed from surface to Gilberton colliery, lower lift, two hundred and ninety-five and one third yards long, and another lift is in course of construction from this level.

Stanton Colliery.

At Tender slope. Tender engine, pumping engine, &c., have been thoroughly repaired, and now in good condition. An airway, one hundred and forty-eight yards long, was driven from Buck Mountain vein, first lift workings, and timbered complete, and new fan erected, eighteen inches diameter, with direct acting engine, 14″ cylinder and 24″ stroke. All the boilers and houses have been repaired. A new frame shipping office, 12′×14′; lamp-house, 10′×12′; tool house, 8′×12′, have been erected.

Lawrence Colliery.

A new slope on Little vein has been sunk a distance of four hundred

and thirty and two thirds yards, well timbered with 19′ collar, 23′ mud sill, and 9½′ legs. A new cleaner and separator, with two large screens, one pair of hoisting engines, cylinders, 30″×40″, and new drum, seventeen feet diameter, have been erected. Twelve new boilers have also been put in, and two new boiler-houses built. The cost for the total improvements amounting to $85,000 60.

Kehley Run

Took out ten old boilers, and replaced them with new ones of improved make and iron. Built a new dam to supply colliery with water, and laid a new 4″ pipe line to colliery. Repaired breaker chutes, and put in part new stringers, posts, new partitions, and bottoms. Also rebuilt foundation walls.

Primrose Colliery.

A new slope has been sunk across the dip in Buck Mountain vein to a depth of six hundred feet, vein dips 40°, slope dips 20°, direction of slope, 3° north of west. At bottom of new slope a tunnel is being driven north to cut the Seven-Foot vein, and is now in fifty feet.

South Laurel Ridge Colliery.

Two new boilers have been put in, 30′×34′, one Allison steam pump, 10″ plunger and 4′ stroke, 25″ cylinder, and a new 12′ fan.

Glendon Colliery.

Built dirt trestle over Lehigh Valley railroad. Put in four new boilers thirty feet long, diameter thirty-four inches. Put up a new sixteen-foot and made new airway for same. Constructed a manway from lower gangway, Ten-Foot vein, to water level. A tunnel from Buck Mountain vein to Seven-Foot vein, a distance of sixty-four feet, has been driven.

General Condition of the Collieries.

I am glad to be able to state that the mines in this district are practically safe. There are some localities in a few of them, however, poorly ventilated, and while I make this statement, it is but justice to say that those having charge of the mines are making praiseworthy efforts to improve the ventilation, as well as the general safety, in erecting new fans and making additional outlets, and from the disposition manifested on the part of the mining officials, it would be safe to expect a marked improvement in the condition of the mines at the close of 1886, compared with 1885.

I would here thank the superintendents, inside and outside foremen for their uniform courtesy toward me, hoping that our coöperation may be so blessed, that we may have fewer accidents this year than we had last, and there is no good reason why we should not.

The following is a report of improvements made at the collieries in the Shenandoah district, of the Philadelphia and Reading Coal and Iron Company during the year 1885:

Ellangowan Colliery.

An addition of 16′×24′ with sheet-iron roof, has been built on each end of the building used as smith and carpenter shops, making the entire building 78′×24′. The old stone forges have been torn out, and replaced by three new cast-iron forges with sheet-iron stacks. A new engine, 8″ cylinder, 12″ stroke, and 5′ fly-wheel, with a 36″ fan for blacksmith blast, have also been put in the shop. The office has been enlarged by the addition of another room, 12′×16′.

A plank hose house, 16′×10′, has been built, and furnished with seven hundred feet of hose on two crabs, with extra couplings for attachment to the Shenandoah fire department's hose.

A tunnel, forty-five yards long, has been driven from the Seven-Foot vein counter gangway to the Buck Mountain vein.

Knickerbocker Colliery.

A tunnel, twenty-one and two thirds yards long, has been driven from the Skidmore vein, first lift, east gangway, to the Seven-Foot vein.

The track has been relaid in the old Barry tunnel, twenty-seven yards long, to the "bottom split" of the Mammoth vein, and the old east gangway re-opened and driven ahead.

A new airway, one hundred and sixty-two and two thirds yards long, has been driven from the Barry tunnel, Buck Mountain vein, west gangway, to the surface, and a fan will soon be erected on this airway.

A new slope is now being sunk to the local basin in the Holmes vein, five hundred yards west of the old slope, and is now down ninety-five yards from the surface.

A new frame engine-house, with engine 16″ cylinder×36″ stroke, and drum 7′ diameter and 10′ long, have been erected on top of new slope; also, a trestle 120′ long×22′ high×16′ to 36′ wide. A new railroad, two thousand feet long with necessary turn-outs, from new slope landing to breaker top.

Four new boilers, 30′ long×34″ diameter, with dirt burning apparatus complete; boilers connected with Anthracite Water Company's six inch main from Waste House run.

A new locomotive house, 16′×22′, with sheet-iron roof, has been built near the old shops for locomotive, to be used from breaker tip to head of both slopes. A new locomotive house, 17′×44′, with sheet-iron roof, has been built near the drift mouth; also a new stable, 100′×38′, with sheet-iron roof. A new airway, one hundred and ten and two thirds yards long, has also been driven from the Barry tunnel, Seven-Foot vein, east gangway, to the surface.

Indian Ridge Colliery.

The Indian Ridge and Plank Ridge collieries were idle during January and February, during which time Indian Ridge breaker underwent repairs

and alterations necessary to prepare all the coal mined at the Plank Ridge colliery, and the Plank Ridge breaker has been completely torn down. Four new boilers, 30′×34″, have been built, with dirt burning apparatus complete. The old water heaters have been torn out, and two new heaters, 34′×34″, put in their place. A new counter chute, sixty yards long, has been made in the west north dip gangway, as a receptacle for coal mined from the Plank Ridge upper workings. A new slope is in course of construction in the Buck Mountain vein, Plank Ridge, west gangway, directly under the slope in the Mammoth vein, and the old engine and drum formerly used for the Mammoth vein slope is now used for the new Buck Mountain slope, the rope passing down the old air shaft from Mammoth to Buck Mountain, thence through a rope heading to head of new slope. An airway is being driven parallel with this slope. Also a slope has been started in the Plank Ridge Seven-Foot vein, directly over the Buck Mountain slope. A new hoisting engine, cylinder 14″×22″ stroke, with drum 5′ 3″ diameter, and 5′ long, has been put in position for this slope, the rope passing down the same air-shaft to the Seven-Foot vein, thence through a rope heading, one hundred and sixty yards long, to head of slope. The transportation from the head of these two slopes is through a tunnel driven south across the measures from the West Mammoth gangway of Indian Ridge shaft.

Shenandoah City Colliery.

After the boiler explosion, August 11, 1885, the hoisting engine and pumps were connected with the Plank Ridge boilers, and four new boilers, 30′×34″, with dirt burning apparatus; these, with a few of the boilers formerly at Plank Ridge, now furnish all the steam for the Shenandoah City colliery slope. Two new boilers, 30′×34″, have been built at the breaker, and four new boilers, 30′×34″, have been put up at the bore hole, all furnished with dirt burning apparatus complete. The old tubular boilers at the bore hole have been removed. The old single breaker has been remodeled and enlarged and fitted up with a complete new set of steel-toothed rollers, screens, and all necessary machinery for the thorough preparation of coal. The old engine in the double breaker has been taken away and replaced by a new one, cylinder 18″×60″ stroke, with a 16′-fly-wheel, which runs all the machinery in the triple breaker. In the new underground slope two lifts have been opened with an east and west gangway on each lift, making four gangways now working from this slope. A new tunnel, forty-six yards long, has been driven from the Seven-Foot vein slope workings to the Mammoth vein, so as to abandon about five hundred yards of Mammoth gangway, which required constant retimbering, and which also increases safety in traveling the main avenue.

Turkey Run Colliery.

In the new slope, west gangway, a tunnel has been started to be driven to the Seven-Foot vein. It is now in fifty yards. A drift has been opened on the Four-Foot vein, underlying the Holmes; the coal is good and hard.

West Shenandoah Colliery.

A new water heater, 30′×34″, and a No. 3 Blake pump have been put in place for feeding boilers. A wooden culvert, two hundred feet long, has been built, leading from the pump discharge at Buck Mountain slope to the creek. The upper part of the slope has been enlarged and retimbered.

Kohinoor Colliery.

A line of 2″ gas pipe has been run through the picking chutes, and the picking rooms are now heated with steam. Eleven of the old boilers have been taken out and replaced by twelve new ones, 30′×34″, with dirt burning apparatus. The boards enclosing the shaft frame, and all unnecessary lumber about it, have been torn away. The weather boarding on the shaft and breaker engine and compressor houses has been replaced by sheet-iron and sheet-iron roofs, thus diminishing the liability to fires.

In the east slope, No. 2, a Philadelphia and Reading Coal and Iron Company's steam-pump, 13″ cylinder ×18″ stroke and 7″ plunger, has been put in place, and another of the same type, with 18″ cylinder ×38″ inch stroke and 9″ plunger, has been put in the west slope. A new lamp-house, 14′×12′ with sheet-iron roof, has been built for trimming and repairing the safety lamps.

A new second outlet and airway has been made from the shaft level west gangway in No. 1 shaft to the surface, which includes a tunnel twenty-six yards long, from the Mammoth to the Skidmore vein; the airway and traveling way in Skidmore vein is two hundred and forty yards long, on an average pitch of twenty-one and one half degrees, and a shaft was sunk from surface to Skidmore, fifty-eight yards deep; area of shaft is 9′×12′

The airway and traveling way in Skidmore vein is timbered with three rows of oak props, with steps and hand-rail put in on the east side, from gangway to foot of outlet shaft. In the shaft a series of easy stairways in stages of eight feet in height, all rising in the same direction, with a level platform or landing nine feet long, from the head of each stairway to the foot of the next one above, has been built from the Skidmore vein to the surface.

The sinking of this shaft was indispensably necessary, and was a very difficult piece of mining, requiring great care and skill, owing to the Mammoth vein having been robbed at this point, and the old workings filled up with the loose rock and slate from the crushed measures above.

I visited this work several times while in course of construction, in company with John L. Williams, division mining superintenent, who evidently took special interest in its construction and in expediting its conpletion. This colliery is now placed in the position of having one of the best outlets in the anthracite region, which could not be said of it while in the possession of its former owners. I am very much indebted to Messrs. Weiser, Luther and Pollard, assistant civil and mining engineers with the Philadelphia and Reading Coal and Iron Company, in giving me information relative to the improvements made at the collieries in their respective districts.

KOHINOOR COLLIERY.
GANGWAY FROM BREAST No. 39.

TABLE I.—*Showing location of collieries in the Fifth Inspection Mine District.*

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Post-Office Address.
Boston Run,	Philadelphia and Reading Coal and Iron Co.,	St. Nicholas, Schuylkill co.,	John Veith,	Pottsville.
Bear Run,	do. do.	do. do.	do.	do.
Buck Mountain,	Buck Mountain Coal Company,	Mahanoy City, do.	Philip Conrad,	Buck Mountain.
Connor,	Philadelphia and Reading Coal and Iron Co.,	Girardville, do.	John Veith,	Pottsville.
Cuyler,	S. M. Heaton & Co.,	Raven Run, do.	do.	do.
Cambridge,	Cambridge Coal Company,	Shenandoah, do.	do.	do.
Draper,	Oliver Disston,	Gilberton, do.	E. J. Phillips,	Gilberton.
Ellangowan,	Philadelphia and Reading Coal and Iron Co.,	Maple Dale, do.	John Veith,	Pottsville.
Elmwood,	do. do.	Mahanoy City, do.	do.	do.
East Bear Ridge,	do. do.	Mahanoy Plane, do.	do.	do.
Girard,	do. do.	Girardville, do.	do.	do.
Girard, Mammoth,	do. do.	Raven Run, do.	do.	do.
Gilberton,	do. do.	Gilberton, do.	do.	do.
Gleudon,	J. C. Haydon & Co.,	Mahanoy City, do.	William P. Daniels,	Mahanoy City.
Hammond,	Philadelphia and Reading Coal and Iron Co.,	Girardville, do.		
Honey Brook, No. 1,	Lehigh and Wilkes-Barre Coal Company,	Audenreid, do.	J. I. Hollenbeck,	Audenreid.
Honey Brook, No. 4,	do. do.	do. do.	do.	do.
Honey Brook, No. 5,	do. do.	do. do.	do.	do.
Indian Ridge,	Philadelphia and Reading Coal and Iron Co.,	Shenandoah, do.	John Veith,	Pottsville.
Knickerbocker,	do. do.	Yatesville, do.	do.	do.
Kohinoor,	do. do.	Shenandoah, do.	do.	do.
Kehley Run,	Thomas Coal Company,	do. do.	Thomas Baird,	Shenandoah.
Lawrence,	Lawrence & Brown,	Mahanoy Plane, do.	George L. Brown,	Mahanoy Plane.
Locust Mountain,	W. J. Lloyd,	Shenandoah, do.	W. J. Lloyd,	Shenandoah.
Mahanoy City,	Philadelphia and Reading Coal and Iron Co.,	Mahanoy City, do.	John Veith,	Pottsville.
North Mahanoy,	do. do.	do. do.	do.	do.
North Laurel Ridge,	S. H. Barratt,	Gilberton, do.	J. H. Deuning,	Gilberton.
Packer, No. 1,	Lehigh Valley Coal Company,	Colorado, do.	Colonel D. P. Brown,	Lost Creek.
Packer, No. 2,	do. do.	Lost Creek, do.	do.	do.
Packer, No. 3,	do. do	Brownsville, do.	do.	do.
Packer, No. 4,	do. do.	Lost Creek, do.	do.	do.
Packer, No. 5,	do. do.	Rappahannock, do.	do.	do.
Park, No. 1,	Lentz, Lilly & Co.,	Park Place, do.	Edward Reese,	Centralia, Columbia county.
Park, No. 2,	do.	do. do.	do.	do. do.
Primrose,	Nevills & Co.,	Mahanoy City, do.	James Wynn,	Mahanoy City.
St. Nicholas,	Philadelphia and Reading Coal and Iron Co.,	St. Nicholas, do.	John Veith,	Pottsville.
Schuylkill,	do. do.	Mahauoy City, do.	do.	do.
Suffolk,	do. do.	St. Nicholos, do.	do.	do.
Shenandoah City,	do. do.	Shenandoah, do.	do.	do.
Stanton,	do do.	Maizeville, do.	do.	do.
South Laurel Ridge,	S. H. Barratt,	Gilberton, do.	J. H. Denning,	Gilberton.
Silver Brook,	Silver Brook Coal Company,	Audenreid, do.	William J. Harris,	Audenreid.
Turkey Run,	Philadelphia and Reading Coal and Iron Co.,	Shenandoah, do.	John Veith,	Pottsville.
Tunnel Ridge,	do. do.	Mahanoy City, do.	do.	do.
West Shenandoah,	do. do.	Shenandoah, do.	do.	do.
West Bear Ridge,	do. do.	Mahanoy Plane, do.	do.	do.
William Penn,	William Penn Coal Company,	Shaft P. O., do.	William H. Lewis,	Shaft P. O.

TABLE II.—*Showing character of coal, production, number of employés, days employed, casualties, &c., in the Fifth Inspection Mine District, for the year, A. D. 1885.*

COLLIERIES.	Operators.	Character of coal, (Anthracite or Semi-Anthracite, Bituminous or Semi-Bituminous.)	Drift, slope, or shaft.	Number of inside workmen.	Number of outside workmen.	Total employees.	Number of days worked inside.	Number of days worked outside.	Number of horses and mules.	PRODUCTION.		CASUALTIES.				
										Number of tons produced.	Number of tons shipped.	Killed inside.	Killed outside.	Injured inside.	Injured outside.	Total killed and injured.
Boston Run,	Phila. and Reading C. & I. Co.,	Anthracite	Slope,	104	109	213		231½	27	107,649.09	102,649.09	1				1
Bear Run,	do. do.	do.	Slope,	249	148	397		232¾	27	140,255.04	134,255.04		1		2	3
Buck Mountain,	Buck Mountain Coal Company,	do.	Slope,	170	123	293		231½	21	86,530	80,453	1		3		4
Connor,	Phila. and Reading C. & I. Co.,	do.	2 drifts,	153	128	281		233	37	138,059 02	130,059.02	1		2	1	4
Cuyler,	S. M. Hoaton & Co.,	do.	Drift,	92	132	224		62	31	26,332.18	25,232.18	10				10
Cambridge,	Cambridge Coal Company,	do.	Drift,	12	3	15		227	5	9,971	8,981					
Draper,	Oliver Disston,	do.	Slope,	215	135	350		244	32	162,354	130,514.11			2		2
Ellangowan,	Phila. and Reading C. & I. Co.,	do.	Shaft,	485	374	859		231½	73	371,723.10	353,724.10	1	2	3		6
Elmwood,	do. do.	do.	Slope,	139	130	269		211½	19	97,406.17	93,406.17		1	2	1	4
East Bear Ridge,	do. do.	do.	Tun. drift	5	4	9		None,	4	531.09	531.09					
Girard,	do. do.	do.	Slope,	80	144	224		200½	33	72,832.17	69,832.17			2		2
Girard Mammoth,	do. do.	do.	Slope,	171	116	287		206¾	33	70,236.15	67,236.15			2		2
Gilberton,	do. do.	do.	Slope,	167	152	319		235	32	93,797.13	89,797.13	1		2	1	4
Glendon,	J. C. Haydon & Co.,	do.	Slope,	268	122	390		186.8	30	118,673.07	108,020.07	1		2		3
Hammond,	Phila. and Reading C. & I. Co.,	do.	Slope,	219	159	378		228¼	40	119,141.18	114,141.18			3	1	4
Honey Brook, No. 1,	Lehigh & Wilkes-Barre Coal Co.,	do.	Slope,	88	132	220		202	19	68,947	58,275	1				1
Honey Brook, No. 4,	do. do.	do.	Slope,	233	149	382		204.8	35	150,635	142,181			4		4
Honey Brook, No. 5,	do. do.	do.	Slope,	183	169	352		213.8	27	173,152	163,771					
Indian Ridge,	Phila. and Reading C. & I. Co.,	do.	Shaft,	456	324	780		201½	72	185,497.04	177,497.04		2	3	3	8
Knickerbockor,	do. do.	do.	Slope,	391	356	747		230½	49	215,565.03	205,565.03	1			2	3
Kohinoor,	do. do.	do.	Shaft,	425	320	745		233¾	48	175,808.13	168,808.13			5	1	6
Kehley Run,	Thomas Coal Company,	do.	Slope,	166	136	302		231¾	29	108,888	106,730			3	2	5
Lawrence,	Lawrence & Brown,	do.	Slope,	218	160	378		209	23	96,873.01	67,165.01	3	1	4		8
Locust Mountain,	W. J. Lloyd,	do.	Slope,	27	16	43		202	4	15,016.02	13,885.09					
Mahanoy City,	Phila. and Reading C. & I. Co.,	do.	Slope,	231	145	376		229¼	45	133,901.04	118,901.04	2				2
North Mahanoy,	do. do.	do.	Slope,	235	160	395		232¼	26	125,164.11	119,164.11	2	1	1	2	6
North Laurel Ridge,	S. H. Barratt,	do.	Slope,	32	34	66		135	6	18,529	17,529	1		1		2
Packor, No. 1,	Lehigh Valley Coal Company,	do.	Slope,	30	10	40		Idle,	18	3,264	150					
Packer, No. 2,	do. do.	do.	Slope,	195	199	394		149¾	10	89,131.12	80,903 01	2		3		5
Packer, No. 3,	do. do.	do.	Slope,	264	166	430		220.1	34	152,192.12	141,164.04	2		1		3
Packer, No. 4,	do. do.	do.	Slope,	307	216	523		225	41	214,097.19	203,309.19	2		5		7
Packer, No. 5,	do. do.	do.	S. shaft,	50	80	130		11.1	2	2,125.01	1,882.01			1		1
Park, No. 1,	Lantz, Lilly & Co.,	do.	Slope,	200	137	337		12½	27	5,567.03	4,967.03					

Park, No. 2,	do.	do.	Slope,	305	156	461	...	170.8	19	95,926.17	85,926.17	4	..	2	1	7
Primrose,	Nevills & Co.,	do.	Slope,	89	100	189	...	209.9	11	52,504.14	51,504.14	..	..	3	..	8
St. Nicholas,	Phila. and Reading C. & I. Co.,	do.	Slope,	None,	9	9	...	None,	6	None,	None,	..	..	..	..	..
Schuylkill,	do.	do.	Slope,	183	133	316	...	230½	23	133,327.18	127,327.18	2	..	3	1	6
Suffolk,	do.	do.	Slope,	314	193	507	...	236¾	33	156,981.06	149,981.06	1	..	7	..	8
Shenandoah City,	do.	do.	D. and S.,	376	263	639	...	230	61	207,583.03	198,583.03	2	..	4	1	7
Stanton,	do.	do.	Slope,	133	126	264	...	182¾	32	53,649.02	51,649.02	1	..	2	..	3
Silver Brook,	Silver Brook Coal Company,	do.	Slope,	..	..	..	..	..	..	..	..	1	..	..	..	1
South Laurel Ridge,	S. H. Barratt,	do.	Slope,	35	39	74	...	144	6	16,403	16,103	..	..	..	1	1
Turkey Run,	Phila. and Reading C. & I. Co.,	do.	D. and S.,	303	182	495	...	237	42	149,518.15	140,518.15	1	..	2	1	4
Tunnel Ridge,	do.	do.	Slope,	..	12	12	...	Idle,	6	None,	None,	..	..	..	..	..
West Shenandoah,	do.	do.	Slope,	196	198	394	...	233½	41	123,657.05	117,657.05	..	..	8	1	4
West Bear Ridge,	do.	do.	Slope,	15	28	43	...	Idle,	4	.. .. ..	.. .. ..	..	..	..	..	..
William Penn,	William Penn Coal Company,	do.	Shaft,	326	274	600	...	229¼	60	242,109	240,097	..	1	2	1	4
Grand totals,				8,540	6,611	15,151	...	8,211¼	1,303	4,781,517.14	4,493,040.11	44	9	82	23	158

TABLE III.—LIST OF ACCIDENTS *occurring in the mines of the Fifth Inspection District, for the year ending December 31, 1885.*

Date of accident.	NAME OF PERSONS INJURED FATALLY.	Age.	Married or single.	No. of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident in Brief.
Jan. 8	Michael Lynch,	30	Single,		Schuylkill,	Mahanoy City, Schuylkill co.		Killed by fall of top slate.
16	William Grindel,	21	Single,		North Mahanoy,	do. do.		Fatally burned with powder; died January 26.
Feb. 7	William Meehan,	45	Married,	3	Shenandoah City,	Shenandoah, do.		Killed by fall of coal in face of gangway.
13	Joseph Richards,	18	Single,		North Mahanoy,	Mahanoy City, do.		Killed by an explosion of boiler.
17	William Morgan,	45	Married,	5	Lawrence,	Mahanoy Plane, do.		Fatally injured between two cars; died March 1.
18	Daniel R. Kerwick,	23	Married,		Packer, No. 2,	Lost Creek, do.		Fatally burned by an explosion of fire-damp; died February 19.
19	Patrick Martin,	14	Single,		Elmwood,	Mahanoy City, do.		Killed; smothered in dirt hopper.
Mar. 13	Charles Holderman,	35	Married,	3	Park, No. 1,	Park Place, do.		Killed; fell down shaft while attending pump.
16	Jacob Griner,	41	Married,	6	Lawrence,	Mahanoy Plane, do.		Killed by an explosion of boiler.
20	Owen McDonald,	32	Married,	1	Connor,	Girardville, do.		Fatally injured by fall of coal; died March 28.
April 3	Robert Whitecomb,	40	Married,		Lawrence,	Mahanoy Plane, do.		Fatally burned by an explosion of fire-damp; died April 10.
4	Thomas O'Hara,	40	Married,	9	Turkey Run,	Shenandoah, do.		Killed between cars and timber.
6	Michael Purcell,	49	Married,	10	Cuyler,	Raven Run, do.		Killed by a fall of a large area of overlying strata.
6	Benjamin Manrer,	43	Married,	2	do.	do. do.		Killed at same time.
6	Michael Herrity,	49	Married,	9	do.	do. do.		do.
6	Henry Mervine,	33	Married,	6	do.	do. do.		do.
6	Daniel Kenney,	37	Married,	5	do.	de. do.		do.
6	John Cavanagh,	23	Single,		do.	do. do.		do.
6	William Anderson,	41	Married,	6	do.	do. do.		do.
6	John Anderson,	18	Single,		do.	do. do.		do.
6	Bernard Smith,	20	Single,		do.	do. do.		do.
6	Frank McCauchlin,	22	Single,		do.	do. do.		do.
17	Patrick McCormick,	38	Married,	4	Packer, No. 4,	Lost Creek, do.		Fatally injured by coal from shot; died April 21.
May 23	Andrew Genon,	24	Single,		Ellangowan,	Maple Dale, do.		Fatally injured by explosion of powder; died May 25.
23	Charles Lewis,	13	Single,		William Penn,	Shaft, do.		Killed; fell into counter screen of breaker.
June 12	Martin Tempest,	16	Single,		Shenandoah City,	Shenandoah, do.		Fatally injured by fall of top slate; died June 15.
26	Robert Marsh,	23	Married,	1	Park, No. 2,	Park Place, do.		Fatally injured; sprained internally lifting car; died July 1.
29	Philip Hahn,	38	Married,	7	Lawrence,	Mahanoy Plane, do.		Killed; fell down slope chute.
July 3	Anthony McCuskey,	24	Married,		Gilberton,	Gilberton, do.		Killed; fell forty yards down slope.
6	Joseph Hoch,	40	Married,	3	Park, No. 3,	Park Place, do.		Fatally burned with powder; died July 16.
6	Henry C. Jokes,	25	Single,		do.	do. do.		Fatally burned with powder; died July 13.
12	James Crawford,	36	Single,		Silver Brook,			Killed riding up slope; fell off water car.
14	Jacob Volokenis,	28	Single,		Glenden,	Mahanoy City, do.		Fatally burned with powder; died July 15.
23	Thomas Reminder,	24	Single,		Ellangowan,	Maple Dale, do.		Killed; crushed under breaker tip and car.
Aug. 3	Charles Lynch,	24	Single,		Knickerbecker,	Yatesville, do.		Killed by fall of coal while robbing pillars.
3	George Dewvick,	25	Single,		Honey Brook, No. 1,	Andenreld, do.		do. do.

	11	John Entduskie,	40	Married,	1	Mahanoy City,	Mahanoy City,	do.		Fatally injured by fall of coal; died August 29.
	13	Albert Spotts,	31	Single,		North Mahanoy,	do.	do.		Fatally injured by fall of coal; died August 14.
	29	Joscph McDermont,	28	Single,		Stanton,	Maizeville,	do.		Killed; crushed between cage and sill on slope.
Sept.	3	Alexander McLeod,	38	Married,	3	Packer, No. 3,	Brownsville,	do.		Fatally burned by explosion of fire-damp; died September 14.
	3	Martin Ginnis,	28	Single,		do.	do.	do.		Fatally burned by explosion of fire-damp; died September 8.
	3	John Lord,	45	Married,	2	Packer, No. 4,	Lost Creek,	do.		Killed by fall of coal at face of breast.
	4	John Craven,	45	Single,		Mahanoy City,	Mahanoy City,	do.		Killed by fall of coal in cross-heading.
	4	Patrick McLauchlin,	20	Single,		Packer, No. 2,	Lost Creek,	do.		Killed; run over by mine car.
	14	Muir J. Baimbridge,	18	Single,		Indian Ridge,	Shenandoah,	do.		Killed; run over by railroad cars under breaker.
	14	John Seagar,	19	Single,		do.	do.	do.		do. do
	30	Nicholas Wildschock,	25	Married,		Ellangowan,	Maple Dale,	do.	Sept. 30	Killed attempting to couple dumper while in motion.
Oct.	9	James Bartlett,	32	Married,	1	North Laurel Ridge,	Gilberton,	do.	Oct. 10	Killed by fall of coal while drilling a hole.
	30	Patrick O'Donnoll,	24	Single,		Buck Mountain,	Mahanoy City,	do.	31	Killed by fall of top slate in gangway.
Nov.	7	John Morning,	55	Married,		Suffolk,	St. Nicholas,	do.	Nov. 7	Killed by fall of coal at face of breast.
	17	George Betteler,	24	Single,		Boston Run,	do.	do.	19	Killed by fall of coal at battery.
Dec.	10	Paul Wiseman,	46	Married,	6	Schuylkill,	Mahanoy City,	do.	Dec. 11	Killed by fall of coal at face of gangway.
	18	James Charles,	22	Single,		Park, No. 3, Slope,	Park Place.	do.	19	Killed in attempting to board moving cars on slope.

TABLE No. IV.—*List of accidents occurring in the mines of the Fifth Inspection District, for the year ending December 31, 1885.*

Date of accident.	NAMES OF PERSONS INJURED NON-FATALLY.	Age.	Married or single.	No. of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident in Brief.
Jan. 5	James Jopp,				West Shenandoah,	Shenandoah, Schuylkill co.,		Ribs broken; piece of rock fell on him.
6	Alfred Hazeldine,				Kehley Run,	Shenandoah, do.		Face and hands scalded by boiler explosion.
8	Henry Biekleman,				Park, No. 2,	Park Place, do.		Back injured; piece of timber fell on him.
9	Patrick Brennan,				Primrose,	Mahanoy City, do.		Head cut by piece of coal from shot.
10	Peter Bradbury,				Glendon,	Mahanoy City, do.		Back bruised; fall of top slate.
14	Charles McBride,				Honey Brook, No. 4,	Audenreid, do.		Leg broken by rush of coal in breast.
15	Martin Loftus,				North Mahanoy,	Mahanoy City, do.		Arm broken; caught by pumping machinery.
24	Frank King,				Kohinoor,	Shenandoah, do.		Arm broken; piece of coal fell on him.
Feb. 3	James Bradbury,				Suffolk,	St. Nicholas, do.		Head and hands cut while spragging car.
6	Andrew Haggerty,				Lawrence,	Mahanoy Plane, do.		Jaw broken while starting battery.
12	Anthony Srosky,				Packer, No. 4,	Lost Creek, do.		Spine and hips injured; fell in manway.
13	James Lord,				North Mahanoy,	Mahanoy City, do.		Face scalded and collar-bone broken by boiler explosion.
16	John Boyer,				Bear Run,	St. Nicholas, do.		Collar-bone broken; coal fell on him.
16	James McDonald,				South Laurel Ridge,	Gilberton, do.		Leg broken; caught by clamp on screen shaft.
18	James Lafforty,				Packer, No. 2,	Lost Creek, do.		Burned severely by explosion of fire-damp.
21	Thomas Carrol,				West Shenandoah,	Shenandoah, do.		Arm broken; struck by mule.
23	George Jones,				West Shenandoah,	Shenandoah, do.		Leg and head injured by fall of top slate.
24	Peter Collins,				Hammond;	Girardville, do.		Small bone of arm broken; fell off breast chute.
24	John Hambnrger,				Suffolk,	St. Nicholas, do.		Ankle fractured; wagon ran over his foot.
24	Charles Rudcaw,				Suffolk,	St. Nicholas, do.		Face and breast bruised; run over by empty car.
24	Ham. Rusk,				Girard Mammoth,	Raven Run, do.		Side squeezed; jammed by mine car.
25	William Delowney,				Shenandoah City,	Shenandoah, do.		Arm broken; riding up slope he struck drum.
25	William Williams,				Draper,	Gilberton, do.		Ribs broken and face cut; shot fired about him.
26	James Donohno,				Suffolk,	St. Nicholas, do.		Leg broken by fall of coal.
26	William Corcoran,				Hammond,	Girardville, do.		Injured severely by falling on screen; (out of place.)
Mareh 4	Peter Shearan,				Buck Mountain,	Mahanoy City, do.		Breast injured; struck by a piece of coal.
4	Isaac Evans,				Stanton,	Maizeville, do.		Ankle-bone splintered; jumping off car.
10	Patrick Fenton,				William Penn,	Shaft, do.		Face and hands burned by explosion of fire-damp.
10	Ralph Baird,				Kehley Run,	Sheuandoah, do.		Eyes injured by premature explosion of blast.
10	William Hennesy,				Knickerbocker,	Yatesville, do.		Head and jaw injured; caught between mine cars.
10	Luke Keenahan,				Indian Ridge,	Shenandoah, do.		Arm broken; fell into coal chute of breaker.
10	Patrick Whalen,				Packer, No. 2,	Lost Creek, do.		Face and hands burned by explosion of fire-damp.
10	John Whalen,				Packer, No. 2,	Lost Creek, do.		Face and hands burned by explosion of fire-damp.
18	Thomas Quinn,				Suffolk,	St. Nicholas, do.		Back injured by fall of top slate.
April 3	Patriek Burke,				Schuylkill,	Mahanoy City, do.		Small bone of arm broken; fell on platform.
3	William Monaghan,				Lawrence,	Mahanoy Plane, do.		Face and hands burned by explosion of fire-damp.
6	Edward Murphy,				Buck Mountain,	Mahanoy City, do.		Head injured; caught in cog of breaker rolls.
7	James Jopp,				West Shenandoah,	Shenandoah, do.		Leg broken; caught by rock in chute.

	8	James O'Brien,			Turkey Run,	Shenandoah,	do.		Wrist dislocated; jammed between ear and schute.
	15	James Bannan,			Primrose,	Mahanoy City,	do.		Slightly burned by explosion of fire-damp.
	15	Patriek Brennan,			Primrose,	Mahanoy City,	do.		Slightly burned by explosion of fire-damp.
	17	Anthony Combs,			Bear Run,	St. Nicholas,	do.		Leg injured; struck by coal from shot.
	17	James Todd,			Girard,	Girardville,	do.		Finger cut off between gunboat and spreader.
	18	Simon Youcivitz,			William Penn,	Shaft,	do.		Body bruised; fell off breaker trestling.
	22	Richard Sampson,			Packer, No. 5,	Lost Creek,	do.		Wrist fractured; fell 50 feet down slope.
	23	William Nicols,			Kehley Run,	Shenandoah,	do.		Leg broken; fall of coal in breast.
	25	George Knott,			Kohinoor,	Shenandoah,	do.		Leg bruised; caught in a rush of coal.
	28	Michael Kollin,			Buck Mountain,	Mahanoy City,	do.		Leg bruised; run over by dumper on dirt bank.
May	15	John Cole,			Suffolk,	St. Nicholas,	do.		Spine injured by fall of coal.
	21	Samuel Rudgo,			Schuylkill,	Mahanoy City,	do.		Body bruised by fall of top slate.
	23	William Meyers,			Kehley Run,	Shenandoah,	do.		Leg broken while starting battery; was amputated.
	27	Benjamin Williams,			Elmwood,	Mahanoy City,	do.		Arm fractured; struck with hammer by his "butty."
June	5	Michael Maley,			Girard Mammoth,	Raven Run,	do.		Ribs fractured by premature explosion of shot.
	9	Michael Haley,			Conner,	Girardville,	do.		Bone of hand broken; fell off plank in breaker.
	11	Charles Docherty,			Packer, No. 4,	Lost Creek,	do.		Leg bruised; fall of coal.
	12	John Fitzeabbage,			Packer, No. 4,	Lost Creek,	do.		Leg broken; piece of coal fell on him.
	16	George Shuck,			Elmwood,	Mahanoy City,	do.		Leg severely crushed between mine cars.
	17	Joseph Conn,			Lawrence,	Mahanoy Plane,	do.		Leg bruised by fall of rock.
	29	Joseph Kelly,			Lawrence,	Mahanoy Plane,	do.		Leg and arm broken; fell down sinking slope.
July	3	Daniel Roarty,			Turkey Run,	Shenandoah,	do.		Leg crushed by fall of coal.
	13	George Hopkins,			Conner,	Girardville,	do.		Finger lacerated; ear ran over it.
	14	Miles Iringham,			Gilberton,	Gilberton,	do.		Leg broken by fall of coal.
	16	George Ridley,			Hammond,	Girardville,	do.		Back bruised by fall of coal.
	23	George Schultz,			Honey Brook, No. 4,	Audenreid,	do.		Leg broken; caught between mine cars.
	24	John McGee,			Honey Brook, No. 4,	Audenreid,	do.		Injured internally; caught between cars and chute.
Aug.	3	David James,			Draper,	Gilberton,	do.		Severely bruised; fell down breast manway.
	6	Owen Pureell,			Park, No. 3, Slope,	Park Place,	do.		Shoulder dislocated; fell out of cross-hole.
	20	Henry Lord,			North Mahanoy,	Mahanoy City,	do.		Hip dislocated; caught between mine cars.
	22	James Igo,			Ellangowan,	Maple Dale,	do.		Hip injured by fall of rock.
	26	Patrick Reddie,			Hammond,	Girardville,	do.		Body bruised; jammed between mine cars.
	26	James Linton,			Shenandoah City,	Shenandoah,	do.		Arm broken; slipped and fell down chute.
	26	Joseph Hardick,			Indian Ridge,	Shenandoah,	do.		Leg broken; jammed between mine cars.
Sept.	3	Anthony Gimes,			Packer, No. 3,	Brownsville,	do.		Severely burned by explosion of fire-damp.
	9	Michael Murphy,			Schuylkill,	Mahanoy City,	do.		Leg broken by fall of coal.
	14	Frank Henry,			Gilberton,	Gilberton,	do.		Leg broken; struck by rope on outside coal plane.
	21	Lawrence Crotosky,	42		Turkey Run,	Shenandoah,	do.		Leg and breast injured by fall of coal.
	28	Thomas Frost,	19		Ellangowan,	Maple Dale,	do.		Arm broken; caught between timber and ear.
	29	James Handlin,	49		Elmwood,	Mahanoy City,	do.		Rib fractured; struck by pin while unloading car.
Oct.	6	Anthony Odlum,			Suffolk,	St. Nicholas,	do.		Side bruised; caught between mine cars.
	6	John Miller,	23		Knickerbocker,	Yatesville,	do.		Small bone of leg broken by fall of coal.
	15	James Price,	24		Glendon,	Mahanoy City,	do.		Body bruised by mine cars on slope track.
	15	John Lucid,	42		Connor,	Girardville,	do.		Head and body hurt by fall of coal
	17	William Irwin,	31		North Laurel Ridge,	Gilberton,	do.	Oct. 18	Leg broken and skull fractured; battery rushed on him
	19	John Sullivan,	18		Stanton,	Maizeville,	do.		Body bruised between mine cars and timber.
	30	William Murphy,	30		Gilberton,	Gilberton,	do.		Arm broken; prop fell on him.
	31	Robert Fishburn,			Shenandoah City,	Shenandoah,	do.		Hand broken; struck himself while driving wedge.
Nov.	2	Thomas Scanlan,	50		Indian Ridge,	Shenandoah,	do.	Nov. 6	Leg broken by a fall of coal
	3	John Breadiavage,	26		Shenandoah City,	Shenandoah,	do.	6	Back, arm, and foot injured by fall of coal.
	6	Michael Kline,	18		Kohinoor,	Shenandoah,	do.		Body hurt; squeezed between mine cars.
	11	George Deiter,	16		Kohinoor,	Shenandoah,	do.		Leg crushed; lever of chute gate fell on him.
	14	John Grograue,	40		Kohinoor,	Shenandoah,	do.		Shoulder-bone broken; caught between mine cars.

TABLE No. IV—*Continued.*

Date of accident.	NAMES OF PERSONS INJURED NON-FATALLY.	Age.	Married or single.	No. of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accide t in Brief.
Nov. 23	James Phillips, ...	. .	. . . . .	. .	Kohinoor, ...	Shenandoah, Schnylkill co.,	. . . . .	Arm broken; caught between car and prop.
17	Frank Bosch, ...	18	. . . . .	. .	Shenandoah City, . . .	Shenandoah, do.	. . . . .	Ankle dislocated; jumping off car.
12	Patrick Kelly, ...	28	. . . . .	. .	Girard, ...	Girardville, do.	Nov. 13	Leg fractured; refused to obey alarm of fire given.
28	John Peel, ...	20	. . . . .	. .	Packer, No. 4, ...	Lost Creek, do.	. . . . .	Forehead cut severely; kicked by mnle.
28	Clarence Brennon, . . .	26	. . . . .	. .	Park No. 8, Slope, . .	Park Place, do.	. . . . .	Thigh-bone broken by a fall of coal.
28	Robert Shuman, ...	26	. . . . .	. .	William Penn, ...	Shaft, do.	Nov. 29	Back and head injured by a fall of coal.
Dec. 3	James Monaghan, ...	. .	. . . . .	. .	Packer, No. 4, ...	Lost Creek, do.	Dec. 4	Hands and face burned by explosion of fire-damp.
4	Joseph Rebovish, ...	28	. . . . .	. .	Indian Ridge, ...	Shenandoah, do.	. . . . .	Shonlder dislocated; dirt dumper fell on him.
5	William Buchannan, . .	18	. . . . .	. .	Ellangowan, ...	Maple Dale, do.	. . . . .	Leg hurt; splinter from rail ran in his leg.
10	Andrew Christian, ...	22	. . . . .	. .	Schnylkill, ...	Mahanoy City, do.	Dec. 11	Ankle broken by a fall of coal.
17	Anthony McManaman, . .	. .	. . . . .	. .	Indian Ridge, ...	Shenandoah, do.	. . . . .	Leg broken; mule fell on him.
22	Andrew Gregor, ...	24	. . . . .	. .	Honey Br'k, No. 1 Strip,	Andenreid, do.	Dec. 28	Foot severely crushed; piece of coal rolled on him.
22	Thomas Miners, ...	28	. . . . .	. .	Indian Ridge, ...	Shenandoah, do.	Dec. 24	Collar-bone and ribs broken between car and timber.

TABLE V.—*Showing the grand total of employés, horses, mules, engines, pumps, boilers, and powder employed, tons of coal mined and shipped, fatal and non-fatal accidents, &c., in the Fifth Mine District, for the year ending December 31, 1885.*

NAME OF COUNTIES AND PARTS OF COUNTIES IN THE DISTRICT.	Total number of men employed.	Total number of boys employed.	Total number of horses and mules employed.	Total number of engines and pumps employed.	Total number of boilers employed.	Total number of kegs of powder consumed.	Total number of tons of coal produced.	Total number of tons of coal shipped.	Total number of fatal accidents.	Total number of non-fatal accidents.	Total number of times air measurements were taken.
.....	10,576	4,575	1,303	437	880	110,590	4,781,517.14	4,493,040.11	53	105	360

SIXTH DISTRICT.

OFFICE OF INSPECTOR OF MINES,
ASHLAND, *March 17, 1886.*

Honorable J. SIMPSON AFRICA, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania:*

SIR: In compliance with an act of Assembly entitled "An act to provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania, and for the protection and preservation of property connected therewith," approved June 30, 1885, I herewith have the honor of submitting this my annual report, which contains a list of the persons killed and injured, together with the number of tons of coal mined and shipped to market, number of kegs of powder used, number of days worked, number of persons employed, number of mules and horses, number of engines and pumps, and number of steam boilers, in and about the collieries in the district during the year 1885, and such other information as may be deemed necessary to those employed or interested in the mining and production of coal.

Total number of tons of coal shipped to market,	3, 961, 206. 17
Sold and consumed at collieries,	244, 214. 00
Total production for year 1885,	4, 205, 420. 17
Total production for year 1884,	4, 535, 051. 13
Decrease under that of year 1884,	329, 630. 16
Number of employés inside,	8, 511
Number of employés outside,	5, 691
Total number of employés in district,	14, 202
Number of kegs of powder used during year,	104, 250
Number of days worked during year,	212. 9
Number of mules and horses,	1, 673
Number of steam boilers,	890
Number of engines and pumps,	
Number of fatal casualties,	45
Number of non-fatal casualties,	136

Very respectfully,

JAMES RYAN,
Inspector of Coal Mines.

Recapitulation of Fatal Casualties.

Falls of coal and roof,	17
Mine cars and machinery,	11
Suffocated by rush of mud,	4
Falling down manway,	2
Premature blast,	1
Explosion of powder,	1
Miscellaneous inside,	5
Miscellaneous outside,	4
Total,	45

Recapitulation of Non-Fatal Casualties.

Falls of coal and roof,	47
Mine cars and machinery,	35
Explosion of carbureted hydrogen gas,	13
Premature blasts,	10
Explosion of powder,	3
Miscellaneous inside,	16
Miscellaneous outside,	12
Total,	136

IMPROVEMENTS MADE BY THE PHILADELPHIA AND READING COAL AND IRON COMPANY IN AND ABOUT THEIR COLLIERIES IN THE SHAMOKIN DISTRICT DURING 1885.

Keystone Colliery.

The air slope, seven hundred and twenty-six feet long, was remodeled and retimbered throughout, and fitted with substantial steps from top to bottom. A new frame blacksmith shop, 41′ 6″×31′, with sheet-iron roof, was erected and equipped. A new frame stable was also erected. A new line of one thousand five hundred and sixty feet of 4″-hautboy pipe was laid from the Potts colliery pipe line to that of this colliery from their large reservoir, thus insuring an abundant supply of fresh water.

Merriam Colliery.

A new, self-acting plane, 14′ collar, 19′ spread, 8′ to 12′ high, and 358′ long from knuckle to landing, was driven in the East Mammoth gangway of the Long Tunnel workings; this is equipped with a drum 7′ diameter, and all other necessary appliances for operating it. A new tunnel, eighty feet long, was also driven from the south dip to the south dip of the South East Tunnel workings. Sixteen new standard boilers were erected, each 34″ diameter, 30′ long, with all fixtures complete, including twenty-eight Wootten patent blowers for burning culm, the brick walls incasing them contain one hundred and five thousand bricks.

There were also erected six standard sheet-iron boiler-houses, each 57′

10″ long and 16′ 8″ wide, and five boiler iron stacks, each 34″ diameter and 30′ high. In order to mechanically convey the fuel from the breaker to the boiler-house, two automatic cast-iron fuel telegraphs were erected, the one one hundred and sixty-four feet and the other one hundred and twelve feet long, the former being operated by three hundred and thirty-six feet, and the latter by two hundred and thirty-two feet of endless chain and scrapers.

Monitor Colliery.

A new air slope, 226′ long, 13′ wide, and 8′ high, was driven in the Mammoth vein from the upper east gangway connecting with a new air-shaft, 31′ deep and 81 square feet area sunk from the surface. This has been supplied with a new 18′-Guibal fan, with all modern improvements and fixtures complete, and operated by a new fan engine of 16″ cylinder, 18″ stroke. A new Standard steam pump, 9″ water cylinder, 38″ stroke, with seven hundred and forty-eight feet of 6″-cast-iron column pipe, has been erected at the foot of the main inside slope, and another pump of the same dimensions with one hundred and fifty-seven feet of 8″ and two hundred and fifty-seven feet of 7″-cast-iron column pipe has been erected at the foot of the upper east inside slope.

The breaker structure has been thoroughly repaired and otherwise improved; the screen rooms have been remodeled and supplied with complete outfits of the new Standard cast-iron slate-picking tables and telegraphs, thereby enabling superior preparation of the coal.

Eight new Standard boilers were erected, each 34″ diameter, 30′ long, with all fixtures complete, including sixteen Wootten patent blowers for burning culm. The brick walls surrounding them contain fifty-four thousand bricks. Two Standard sheet-iron boiler-houses, each 57′ 10″ long and 16′ 8″ wide, were also erected together with two boiler-iron stacks, each 30′ high 34″ diameter. A new boiler-iron heater, 40′ long and 34″ diameter, has also been added to these boilers. A No. 4 Cameron steam pump and a Quirin steam pump of 10″-water cylinder and 16″ stroke, together with a new 4,000-gallon tank, and a line of seven hundred and sixteen feet of $2\frac{1}{2}$″-water pipes have been added to the water-supply. A cribbed and filled embankment, one hundred and eighty-nine feet long and thirty feet high, has been constructed to obtain a better alignment of the road from the slope landing to the breaker tip.

Locust Spring Colliery.

Breast No. 61 of the lower west No. 8 vein workings has been driven one thousand five hundred and seventy-five feet through to the surface, and connected to the lower and upper counter gangways, thus making a convenient, safe, and easy second outlet from all the workings west of the hoisting slope and perfecting their ventilation.

A new tunnel, fifteen feet long, has been driven from the lower east Mammoth gangway, at breast No. 40 to the Skidmore gangway.

A new Standard steam pump, 9″ water cylinder, 38″ stroke, with one thousand feet of 8″ cast-iron column pipe, has been placed at the foot of the slope.

Eight new Standard boilers, each 34″ diameter, 30′ long, were erected, (four of them replacing the old ones injured by the explosion of December, 1884,) with all fixtures complete, including sixteen Wootten patent blowers for burning culm.

Three Standard sheet-iron boiler-houses, each 57′ 10″ long, 16′ 8″ wide, and two boiler-iron stacks, each 30′ high and 34″ diameter, were also put up. A frame supply house for purifying materials was also constructed, with sheet-iron roof.

Locust Gap Colliery.

The large trestle at the breaker tip, three hundred and three feet long and seventy feet high was thoroughly renewed, and is now in first-class condition.

Reliance Colliery.

A new Standard steam pump, 8″ water cylinder, 32″ stroke, has been erected to supply the jigs with water, and a set of steel rolls has been put into the breaker.

Mt. Carmel Shaft Colliery.

A new self-acting plane, two hundred and eighty-five feet long from knuckle to landing, was driven in the South West working, and equipped with a seven foot drum, and all other necessary appliances for operating it. A new Standard steam pump, 9″ water cylinder, 38″ stroke, with three hundred and seventy nine feet of 5″ cast-iron column pipe, has been erected at the foot of the shaft.

The breaker has been supplied with a new automatic dirt conveyor, seventy-six feet long, with fifty-four 16″ scrapers. A new frame office, 10′×12′, and a new frame wash house, 12′×16′, for the miners, were also erected.

Peerless Colliery.

The old landing at the head of the north dip slope in the No. XI vein has been abandoned, and a new one made at the level of the water level gangway. This necessitated the making of an open cut, one hundred and forty-five feet long, fifty-eight feet wide, and twenty feet deep, with a backswitch tunnel, in the top rock, sixty feet long, twenty feet wide, and seven feet high, all of which has been completed, and is now in first-class working order.

The airway in the No. X vein has been enlarged and retimbered, thus effecting improved and reliable ventilation. A new standard sheet-iron boiler-house, 54′ 6″×19′ 7″, was erected during the year.

Henry Clay Colliery.

Two Standard steam pumps, each 9″ water cylinder, 38″ stroke, with three hundred and fifty-eight feet of 6″, 8″, and 10″ cast-iron column

pipes were erected at the foot of the hoisting shaft; as were also two exactly similar pumps at the foot of the No. 1 inside slope, with three hundred and five feet of 8″ and 10″ cast-iron column, and three hundred and fifty feet of 4″ cast iron steam pipes.

Burnside Colliery.

A new frame fan engine-house was erected.

Bear Valley Colliery.

Four new tunnels were driven in this colliery during the year, viz: One, 10′×10′ and forty-six feet long from the West No. X gangway to the West Mammoth gangway; two, 10′×10′, and nineteen feet long each, from the west middle split gangway to the top split vein; and one, 10′×10,′ and twenty-five feet long from the west middle split gangway to the bottom split gangway.

A new trial slope has been sunk from the surface into the basin of the Mammoth vein, between the east side water level and shaft level workings. This slope, which is four hundred and seventy-four feet long, and has a tunnel thirty-three feet long at its foot, is regularly timbered throughout, and has good stout ladders, firmly fastened from top to bottom; it is also valuable as a convenient and safe additional outlet, and assists in ventilating the workings.

To sink this slope, there has been erected a hoisting engine of twelve inch cylinder and twenty-four inch stroke, four feet drum with brake, and seven foot fly-wheel attached; also a No. 3 flue boiler with iron stack, and a frame hoisting engine-house, nineteen feet long, thirteen feet wide, together with one No. 3, and one No. 5 Blake steam-pumps, with two hundred feet of two inch column pipe to drain the slope. East of the breaker there has been erected a new double track dirt plane, three hundred and forty feet long, with trestle one hundred feet long, thirty-six feet high, and twenty feet wide, with large dirt and rock bins at both top and bottom, so arranged as to unload the dirt and rock automatically.

Two new reservoir dams have been constructed, the one for fresh water supply has a capacity of about five million gallons, and the other for water supply to wash coal at the lip screens, has a capacity of about one hundred thousand gallons.

A new frame three thousand gallon tank, and a new frame pump-house 30′×12′ with sheet-iron roof were erected, also, a frame sheet-iron roofed locomotive-house, 16′×12′.

North Franklin No. 2, Colliery.

A tunnel, 10′×10′ and 42′ long, was driven from the No. VII to the No. VI vein. The boilers not heretofore burning culm were remodeled to use such fuel, and supplied with six additional Wootten patent blowers. Aside from the improvements above enumerated, the usual repairs were main-

tained at all the collieries, and the properties kept up to the established standard.

Bast.

A new addition to the breaker, fifty-five long, thirty-three feet wide, and forty feet high, with screens, cast-iron telegraphs, tables, chutes, and slate boxes has been built.

North Ashland Colliery.

The airway at slope has been retimbered from the water to drift surface. A new airway, one hundred and four yards long, has been driven from the lower left gangway, Buck Mountain vein, to the water level gangway. A new sump gangway, forty feet long, seven feet wide, and twelve feet high, has been driven. A standard, 9×38, Philadelphia and Reading Coal and Iron Company's pump, has been placed in position in the rock pump room, east of foot of slope. A new fan, fifteen feet in diameter, with vertical engine, eighteen inch stroke and twelve inch cylinder, has been built at the head of airway near slope, taking the place of the one burned down. A head frame gunboat dump and small breaker are being built at head of slope.

Preston No. 3.

Pump slope is being retimbered from top to bottom.

Preston No. 2.

A new pipe line three thousand four hundred and eighty feet long, has been laid from the Girard estate pipe line to the colliery reservoir.

Short Mountain and Lykens Valley Colliery.

Sunk No. 4 slope one hundred and twenty-three yards, driven fourteen and one half yards of Y at bottom of same. Made twenty-eight yards of engine room. Put in two Allison & Bannan steam pumps. Drove seventy and one third yards of cross-cut tunnel in No. 1, west counter. Put in place twelve new boilers (additional) each 34″×30′ long; also, two boilers 36″×25′ feet long, and a Blake pump at coal yard for fresh water supply for colliery boilers. Put in place two boilers at machine shop, saw-mill engine, and a fifteen-foot fan to ventilate the old Bear Valley tunnel workings.

Williamstown Colliery.

Made room in rock for eight boilers for No. 4 slope, 60×45×9′ high, for furnishing steam for hoisting and pumping water. Driven a cross-cut tunnel fifty-three and two thirds yards long, from No. 3 slope counter Big vein to White's vein. Drove a cross-cut tunnel nineteen yards long, from No. 10, to dirt vein in Summit slope, and another cross-cut tunnel nineteen and one third yards long, from No. 9 to No. 8 vein, in Bear Valley slope. Built three blocks of houses, two twenty-eight feet square, seventeen feet high for two families each, and one block 26′×52′, 17′ high for four families. Dug eight hundred and fifty yards of trench, and laid pipe from Greenfield's, to pump fresh water for boilers at colliery.

Cameron.

Drove three tunnels, one from No. 9 to No. 6 vein, and one from No. 10 to No. 13 vein, No. 9 slope level, another from No. 9 to No. 10 vein in east inside slope. Put up two fans to ventilate the workings.

Luke Fidler.

Drove a tunnel from No. 9 to No. 6 vein, and driving a tunnel from No. 9 to No. 10 vein. Put up a new fan to ventilate the workings. Put in place two new boilers, and built house for same.

Hickory Ridge Colliery.

Have driven a tunnel from No. 8 to Buck Mountain, north dip, and driving one from same vein to same vein, south dip. The colliery is undergoing a general change for the better.

Neilson Shaft.

Put in place six new boilers 34″×30′ long; sinking shaft.

Mt. Carmel Colliery.

Built an addition to breaker, putting in machinery for re-breaking broken and egg coal, and new slate picking tables complete. Built a fresh water dam for supplying colliery boilers.

Enterprise Colliery.

Sunk a new slope on the north dip of the No. 8 vein, and drove a water level tunnel from bottom of same. Put four boilers and engine in place, and built house for same. Put up a twelve-foot fan to ventilate the workings.

Logan.

Put in place four new boilers, one new stack for same; also, a new twelve-foot fan to ventilate the Buck Mountain vein, north dip, workings. Provided a locomotive outside to haul away the coal dirt from breaker.

Centralia Colliery.

Sunk a new lift of slope about nine hundred feet deep.

Hazle Dell Colliery.

Put in place two new boilers to furnish steam to hoisting slope engine and fan.

ACCIDENTS.

Miscellaneous Outside.

ACCIDENT No. 1.—Enoch Sandusky, slate-picker, aged fourteen years, suffocated by steam at Luke Fidler colliery, May 9, 1885. According to evidence, it was a habit of the slate-picker boys, during dinner hour, after they ate their dinners, to get on an ash car (that was used to haul the ashes from breaker boiler in or out on ash bank) and run it into boiler-house. At time of accident deceased, with other boys, were running it into boiler-

house; it jumped the track and struck against the front of one of the boilers, displacing the man-hole door, causing the steam to escape in such a volume as to suffocate deceased before he was rescued from the danger to which he was exposed.

Accident No. 2.—Martin Lavell, slate-picker, aged fourteen years, fatally injured by being crushed between big railroad car wheel and rail at Centralia colliery, May 11, 1885. He died in about eight hours after accident. Deceased was employed picking slate out of coal on top of big railroad cars while standing on railroad, after being loaded at breaker. While thus engaged picking the slate on top of loaded cars out near end of railroad track, he saw a trip of loaded cars coming toward him; he got off and ran to meet the trip of five cars; in his attempts to get on he fell with his both legs across the rail in front of the wheel of first car; he was dragged about thirty feet; the flesh on one leg was lacerated nearly from his hip down to his knee. The other leg was broken between knee and hip. He died from the injuries received at the time above mentioned.

Accident No. 3.—Joseph Lester, engineer, aged fifty-one years, killed on July 4, 1885, by the explosion of a steam boiler at Williamstown colliery. He left a wife and five children. According to the evidence given at inquest, the accident occurred about nine o'clock in the morning, and the cause assigned for it was an insufficiency of water in boiler, at the same time running or pumping in cold water. Cland Como (boiler-maker) testified to having examined the boiler in about nine hours after accident, and could find neither a crack nor flaw in the iron. He also stated the boiler was made of the best quality of iron, and was good for from twelve to fifteen years. William M. Jones, night engineer, testified that the boiler was full of water up to the top gauge when he left at seven o'clock in the morning. Deceased, when found after accident, was in front of where the boiler was before the accident, in a sitting position, his face toward south and against a little closet. There was a wound on the back of his head.

Accident No. 4.—Joseph Dunlap, Jr., slate-picker, aged twelve years, fatally injured on big railroad near Short Mountain and Lykens Valley Colliery breaker, July 29, 1885, by being run over by railroad cars. He died in about three hours after accident. Deceased, at time of accident, while running along railroad near breaker on his way home from work in the evening, was struck by the front wheel of first car of an empty train of cars that were being pushed toward breaker by a locomotive, knocked down and run over, sustaining injuries from which he died shortly after accident.

Miscellaneous Inside.

Accident No. 1.—Thomas Laughlin, miner, aged fifty years, fatally injured by being thrown down Garfield Colliery slope, January 5, 1885. He died in about two and one-half hours after receiving injuries, leaving a wife and five children. Deceased was employed driving the chutes and head-

ings in the west counter gangway. In crossing the slope under the rope at water level, on his way going home in the evening, he took hold of the rope. While crossing, the engineer started to hoist, raising the rope up near slope collars, throwing deceased down the slope, causing such injuries to him that he died at the time above stated.

ACCIDENT No. 2.—John Doyle, miner, aged forty-seven years, fatally injured January 10, 1885, by falling down cross-hole in Logan colliery, died on January 26, 1885, leaving a wife and four children. Deceased was employed driving the air course, or monkey gangway, in the east side, north dip workings, No. 3 slope. While in the act of running away from a blast, he slipped and fell down a cross-hole to gangway, receiving injuries which caused his death in sixteen days after the accident.

ACCIDENT No. 3.—Charles James, miner, aged thirty-three years, fatally injured in Garfield colliery by an explosion of the contents of an empty powder keg, with about two quarts of water in it, (that was used to thaw dualin powder,) on blacksmith's fire, January 29, 1885. He died in about six and a half hours after accident, leaving a wife and one child. Deceased, with four other men, were employed driving a tunnel. After going down to work at seven o'clock in the morning, he got an empty powder keg with about two quarts of water in it. He put the keg on the fire to warm the water to thaw some dualin powder preparatory to firing a blast. It had not been on the fire more than five or six minutes when the explosion took place with the above result. The water which was in the keg at time of explosion was used by the eleven o'clock shift in thawing dualin; therefore, it must have been heavily charged or mixed with the explosive substance of the dualin thus thawed.

ACCIDENT No. 4.—James Narrance, miner, aged fifty-three years, killed in Bear Valley shaft colliery by a rush of coal and dirt, while sinking battery prop hole, on June 17, 1885. He left a wife and two children. Deceased and another miner, named William Heath, were employed driving chutes and headings in the No. 10 vein, west gangway. On morning of accident they discovered the battery of breast No. 23 giving away, caused by the bottom slate heaving. At time of accident deceased was sinking fresh prop holes preparatory to putting in a new or relief battery, when the old battery; together with a large mass of loose coal and dirt, came rushing down, covering and suffocating him before he was extricated therefrom.

ACCIDENT No. 5.—Charles Shultz, miner, aged thirty-one years, killed in Bear Valley shaft colliery by a rush of coal and dirt, October 31, 1885. He left a wife and two children. At time of accident deceased was at the third cross-heading in manway throwing coal up to start some loose coal and dirt that was blocked in the manway between the third and fourth cross-headings. While thus engaged, the loose coal and dirt started down the manway, caught and suffocated him before he was rescued therefrom.

Premature Blast.

Accident No. 1.—John Rigotti, miner, aged forty years, fatally injured by a premature blast in lower west cross-cut tunnel in Pennsylvania colliery, March 28, 1885. He died in about two days and a half after the accident, leaving a wife and five children in Austria. At time of accident deceased and two other men, named John Ferrari and Peter Flinn, were employed driving a tunnel from No. 9 to No. 8 vein, on the No. 1 slope level, west side, about 11.30 o'clock. A hole that they had drilled and tamped missed fire three times; after which deceased took and put an iron needle in it. While in the act of twisting the needle in the hole the blast exploded, some of the pieces striking and injuring him to such an extent as to cause his death at the time above stated. This is one of the many accidents that could have been averted, had that care and prudence been exercised, which should have been on such occasion, by using the copper needle that was provided for such use, instead of an iron one.

Explosion of Powder.

Accident No. 1.—John Glinsku, miner, aged fifty-three years. Died on June 22 from injuries received on the 15th, by the explosion of a keg of powder in Excelsior colliery. He left a wife and four children. On day of accident, about 4.30 o'clock p. m., deceased and his butty, Martin Kutkasii, were at the box where they kept their supplies; deceased, after putting fresh cotton in his lamp, was in the act of throwing away the old cotton, when sparks from it ignited a full keg of powder, inflicting injuries of such a nature as to cause his death in seven days after the accident.

Falling down Manway.

Accident No. 1.—James Kilmurray, miner, aged thirty-four years, killed by falling down manway in Hickory Ridge colliery, May 22, 1885. He left a wife and five step-children. Deceased and his brother John were working in breast No. 22, No. 9 vein, east gangway, old slope level. Between two and three o'clock, p. m., while going down inside manway on their way home, deceased who was first, slipped and fell; when found by his brother at bottom of manway, life was extinct. Vein is dipping on an angle of about seventy-five degrees.

Accident No. 2.—John Meiskie, miner, aged twenty-seven years, fatally injured by falling down manway at Hickory Ridge colliery, June 12, 1885. He died shortly after accident; single man. Deceased, and another man John Groblinski, were at the time of accident working in a breast in the same vein, same gangway, and same slope as the Kilmurrays. After going in to work in the morning, they drilled and tamped two holes, one missed fire; after the smoke had cleared away, Groblinski dressed off the loose coal after blast, and put a fresh squib in the hole that missed fire, and went down to the cross-heading where Meiskie was sitting. In a couple of minutes after the blast, deceased went up to face of breast, and across to out-

side of manway where he slipped, and fell down manway a distance of about sixty yards, receiving injuries which caused his death in about ten hours after accident.

Falls of Coal and Roof.

ACCIDENT No. 1.—James Manning, miner, aged forty-two years, killed by a fall of top coal in Mt. Carmel shaft, February 24, 1885. He left two children to survive him. At time of accident deceased was working in a breast with another miner named Henry Pugh. The latter was loading a car; deceased was standing on top of the bottom coal starting to drill a hole in the top coal; he had only given the coal a couple of punches with the drill starting the hole, when the top coal over where he was standing, without giving any previous warning, fell, killing him instantly.

ACCIDENT No. 2.—John Sproato, miner, aged twenty-eight years, killed by a fall of top coal in North Ashland colliery, April 2, 1885. He left a wife and four children. At time of accident, deceased and two other miners, Charles Metz and Fred. Young, were robbing pillars between the lower and west counter gangways in the Mammoth vein. About ten o'clock, A. M., they fired a blast—they sat down to let the smoke clear away and the place settle off. In about half an hour after firing the blast they went back to dress off the loose coal; deceased sounded the three-foot bench, which was over him, with a pick, concluded it was safe, and commenced to dress off the loose coal with the pick; while doing so, a large mass of top coal fell on him, killing him instantly.

ACCIDENT No. 3.—John Petrokufskie, miner, aged forty-five years, killed by a fall of top slate (clod) in Hickory Swamp colliery, April 25, 1885. He left a wife and one child. Deceased, at time of accident, was employed with another man, named Martin Kuxhinskie, robbing pillars. He (deceased) was barring off some loose coal at face of working place, when the top slate over where he was standing, which was of a very rotten, dangerous character, fell, killing him instantly.

ACCIDENT No. 4.—John Zurow, miner, aged thirty-seven years, killed by a fall of top coal in Black Diamond colliery, May 8, 1885. Single man. According to the evidence given at inquest, deceased and two other men, viz: John Nowatskie and Matthew Snyder, were engaged or employed working in a breast in the west counter. Not being satisfied with his working place, he went to an adjoining place without the consent or knowledge of the boss. While in the act of passing under some top coal, which was overhanging, it fell, and killed him instantly.

ACCIDENT No. 5.—Peter Starkoskie, miner, aged twenty-eight years, killed by a fall of top slate in Lykens Valley colliery, May 28, 1885. He left a wife and two children. Deceased and another miner, Francis Haak, were working in a breast in No. 1 drift, White's vein, Short Mountain side. After they both ate their dinners, deceased went up to face of breast; Haak

stopped to push down coal to loader. After he had the coal pushed down, he went up to face of breast, not seeing his butty then, he (Haak) went out to the adjoining breast, inquired of the men working there if they saw anything of his butty, to which they replied no. They, together with Haak, went into deceased's breast, one of the men, Henry Schnendy, lifted up a lump of a fresh fall of slate and found his lamp and cap. They, with the help of other men, lifted up the balance of the slate and found deceased; life was extinct.

Accident No. 6.—Israel Morgan, miner, aged forty-four years, fatally injured by a fall of coal and slate in West Brookside colliery, June 11, 1885. He died from the injuries received in about eight hours after accident, and left six children to mourn his loss. Deceased and another miner named Samuel H. Sharon were, at time of accident, driving chutes and cross-headings. After going in to work in the morning, they drilled, tamped, and fired two blasts in a cross-heading. After the smoke had cleared away, Sharon started to shovel the loose coal out of cross-heading; deceased went to start to drive the next chute inside. He drilled a hole; Sharon helped him to tamp and fire it. It failed to perform the work intended in not throwing what was before it, only cracking and shattering the coal and overhanging slate. Sharon sounded the overlying slate with a drill and found it was almost ready to fall. While he (Sharon) was talking to Henry Mithamer, the inside boss, the deceased took a drill, gave the coal two or three punches; in an instant a mass of coal and slate fell out, covering him all but his head, causing injuries of such a character as to cause his death in about the time above stated.

Accident No. 7.—Michael Cuff, laborer, aged thirty-four years, killed by a fall of top slate in Morris Ridge colliery, July 2, 1885. Single man. According to the evidence elicited at inquest, deceased, at time of accident, was working with John E. Davis and Martin Canfield by night, driving the east gangway in the Buck Mountain vein in slope workings. After going in to work in the evening, Davis sounded the top; it sounded solid; after firing the first blast he sounded it again with the same result; they concluded it was safe to work under. After firing the third blast, without giving any previous warning it fell on deceased, killing him instantly. In my examination of the place after accident, I measured the slate that fell; it was about seven feet long by four and one half feet wide, and about one and one half feet thick at one end, tapering to a feather edge at the other end. It fell from a point about five or six feet out from gangway face. There was a slip or parting in the roof from where it fell, both next to face and high side of gangway. This, together with the concussion or jar of the blast, was the cause of its sudden falling.

Accident No. 8.—George Machamer, laborer, aged twenty two years, died July 13, 1885, from injuries received by a fall of coal on the 10th of same month, in Lykens Valley colliery. He was a single man. According to the evi-

dence produced at inquest, deceased and two other men named Israel G. Martz, laborer, and Henry C. Eckley, miner, were, at time of accident, working by night in the east gangway of No. 4 slope. Eckley and Martz were drilling a hole in bottom slate on high side of gangway with a hammer and jumper, or rock drill. When the hole was drilled down about thirteen inches Eckley told deceased to help Martz to drill it down about two inches deeper, while he (Eckley) was preparing a charge of powder. They were giving the hole the last round preparatory to charging it, when suddenly the coal on upper or high side of gangway gave a crack or bump, throwing out coal and covering deceased, breaking his thigh and inflicting such bodily injuries as to cause his death in three days after the accident.

ACCIDENT No. 9.—John Moss, miner, aged thirty-four years. Killed by a fall of top slate in Reliance colliery, September 16, 1885. He left a wife and two small children to mourn his sad fate. Deceased and another miner, named John Heebal, at time of accident were working in breast No. 47 on the west gangway. According to the evidence of Heebal, they were aware of the roof not being safe and made no effort to prop or take it down until it fell on deceased, while he with Heebal were loading a car about nine o'clock in the forenoon. Comment is unnecessary.

ACCIDENT No. 10.—Lewis N. Woodside, laborer, aged fourteen years, killed by a fall of top slate in Lykens Valley colliery, October 1, 1885. Single. By the evidence given at inquest deceased at time of accident, was working with Levi Eirich, miner, in breast No. 14, No. 1 level, west counter, Short Mountain side. According to the evidence Eirich, he (Eirich) sounded the top ten or fifteen minutes before the accident, and that it sounded solid, and that he had been mining coal for the last fifteen years. According to the testimony of other men, Eirich was considered a good, experienced, practical miner.

ACCIDENT No. 11.—John Dursinski, laborer, aged forty-three years, died on October 3, 1885, from injuries received by a fall of coal in Merriam colliery, September 14, 1885. He left a wife. Deceased and a miner named John Koppershinski, at time of accident, were working in breast No. 13, south tunnel workings. About between eleven and twelve o'clock, A. M., they were barring down a bench of coal about four inches thick; an overlying bench about between fifteen and eighteen feet long, seven feet wide, and three feet high, without giving any previous warning, fell striking both men, inflicting injuries on deceased which caused his death at the time above stated.

ACCIDENT No. 12.—Henry Constantine, miner, aged forty-four years, fatally injured by a fall of top rock in Morris Ridge colliery, October 13, 1885 He died in about three hours after receiving the injury, leaving a wife and four children. According to the evidence of his son, Thomas Henry Constantine, who was working with him at the time of accident, from the time they went in to work in the morning, until the accident occurred,

about nine and one half o'clock, A. M., they were raising the sheet-iron in chute to run the coal down the leader. When they had it raised up as far as the point where the accident occurred, deceased sounded the top and said it was all right. Almost in an instant after he said so it fell, striking and inflicting such injuries as to cause his death shortly after being removed to his home.

Accident No. 13.—Doufil Racofski, laborer, aged twenty-five years, killed by a fall of top coal, in Mount Carmel shaft, October 31, 1885. He left a wife and two children in Russian Poland. Deceased, at time of accident, was working with James Philips, miner, in No. 4, slant breast, in the west north dip workings. Philips was barring off some loose coal after a blast; deceased was sitting down about three feet outside of him. A bench of overhanging top coal about two feet at one end, three and one-third feet at the other end, about four feet long, and ten inches thick, that was slipped at high side of breast without giving any previous warning, fell on deceased, killing him instantly.

Accident No. 14.—William Clemens, miner, aged thirty-five years, died on November 10, 1885, from injuries received on October 29, 1885, by a fall of top slate in Monitor colliery. He left a wife and one child. Deceased and another miner, Jacob Artin, were working in breast No. 7, on the east slant, in Skidmore vein. They fired a blast, the coal striking and knocking out two props that had been stood under a piece of bad top. Shortly after firing the blast, deceased commenced clearing away the loose coal preparatory to setting the props. Artin told him to keep back, the place was not safe. Unmindful of the danger and the advice given, he continued clearing the coal away. While he was engaged in the perilous work, the piece of top slate, that the props were knocked from under, fell on him. The injuries he received caused his death in eleven days after accident.

Accident No. 15.—Lawrence Cannon, laborer, aged eighteen years, died on November 25, from injuries on the 20th, by a fall of coal in Big Mine Run colliery. He was a single man. Deceased, at time of accident, was working with his father, Martin, and brother, John, robbing pillars, between breasts No. 16 and 17, off the west slant gangway, upper drift workings. The accident occurred about one and one half o'clock, P. M. About 12.45 P. M., they fired a blast; after the smoke had cleared away, John dressed off the loose coal after the blast, and had the place made safe, as they thought. The father commenced to drill another preparatory to firing another blast while the two sons were loading the loose coal into buggy or small car, running it down and dumping the coal into chute. They were loading the third buggy, when a piece of top coal, over where they were working fell, striking deceased, inflicting injuries from which he died in five days after accident.

Accident No. 16.—Ralph Kirby, miner, aged forty-four years, died on

December 7, 1885, from injuries received on October 16, 1885, by fall of top coal in Logan colliery. He left a wife and one child to survive him. On day of accident, deceased and another miner, named William Sheaffer, were working together in breast No. 29, south dip, No. 4 slope. About three o'clock in the afternoon, while deceased was on his way walking down from face of breast toward dump chute, near gangway, where Sheaffer was dumping a buggy to help him push it up the face of breast, about a wheelbarrow full of shelly, loose top coal fell, some of it striking him and inflicting injuries which caused his death at the time above stated.

ACCIDENT No. 17.—William H. Meck, miner, aged fifty-two years, fatally injured by a fall of top slate, in Luke Fidler colliery, December 30, 1885. He died while being removed to his home, leaving a wife to mourn his loss. Deceased and three other men, named Benjamin Bowman, Samuel Schiverbenz, and Solomon J. Ohrendorf, were timbering the east, No. 8, gangway, No. 1 slope counter. They were, setting a set of timber ; Ohrendorf and Schiverbenz were cutting some plank to tighten the timber; deceased got a drill and tried to bar down the slate, preparatory to putting another set of timber. Failing in his efforts to bar it down, he concluded it would have to be blasted down. Shortly after, while he was standing on the gangway under it, it fell on him, causing bodily injuries from which he died shortly after accident.

Mine Cars and Machinery.

ACCIDENT No. 1.—John A. Kreiser, breaker-boy, aged fourteen years, fatally injured in West Brookside colliery breaker, by being crushed between dirt elevators and chute, on February 6, 1885, died same evening from the injuries received. By the evidence taken at inquest, the deceased at time of accident was employed to keep the dirt pushed down a small chute from elevator. According to the evidence, he was told by the outside foreman on several occasions not to go near the elevator, and was given a broom and scraper to keep the dirt away. Unmindful of the instructions given, he acknowledged to having kicked against one of the dirt pockets to knock off some of the dirt on it. While in the act his foot was caught as above stated.

ACCIDENT No. 2.—Thomas Challenger, slate-picker, aged thirteen years, killed on Williamstown colliery dirt bank, by being run over by loaded dirt cars on February 28, 1885. This accident occurred in the evening after quitting time. Deceased, while on his way home after work, in attempting to get on one of a loaded trip of dirt cars that were being hauled out on dirt bank, fell in between them. In his efforts to extricate himself from his perilous position, he was run over and instantly killed.

ACCIDENT No. 3. — Thomas Berry, miner, aged thirty-one years, died March 14, 1885, from injuries received the day previous, by being run over by empty and loaded mine cars at Williamstown colliery. He left a wife and three children. This accident occurred between three and four o'clock,

p. m. There were four loaded cars standing inside of tunnel mouth near breaker. Deceased had an empty car on the west track outside of tunnel, waiting until the loaded cars were pulled out, so as to admit of him pushing his empty car into tunnel, and run it out on east track to load timber on it. Joseph Rinehart and David Watkins, drivers, pulled the loaded cars out toward breaker tip. Deceased pushed his empty car into tunnel mouth, turned the switch, and was in the act of pushing it out to load the timber in it, when some of the cars of loaded trip ran back, striking the car that he was behind pushing, knocking him down, the empty car running over him. When found he was lying with his shoulder under the hind axle of last car, sustaining injuries of such a character as to cause his death about fifteen hours after the accident.

Accident No. 4.—Thomas Hollingsworth, miner, aged forty-three years, died on April 8, 1885, from injuries received on March 11, 1885, in Preston No. 2 colliery, by his hand being crushed between a lump of coal and back of mine car. He left a wife and four children. At time of accident, deceased was standing on bumper at back end of mine car, riding out the Mammoth vein west gangway; when passing the chute of breast No. 31, a large lump of coal caught against the chute turning it back, catching his left hand against the back end of car, causing injuries such as to cause his death at the time above stated.

Accident No. 5.—Dennis Cannon, laborer, aged twenty-six years, killed by being struck by mine cars at the bottom of No. 4 slope of Williamstown colliery, June 18, 1885; single man. This accident was caused by the breaking of side hook of loaded cars while they were being hoisted up the slope. Deceased was turning, or after turning a switch to run empty cars out of back switch tunnel at slope bottom in on west turn-out, as the car was passing him the loaded cars came back down the slope, striking and throwing there over on top of deceased, killing him instantly.

Accident No. 6.—Edward Parry Hughes, slate-picker, aged ten years, died on June 29, 1885, from injuries received four days previous, by being run over by empty mine cars and locomotive outside, at Preston No. 3 colliery. The accident occurred in the evening, after the breaker had stopped work for the day. After quitting time, it was customary to run the boys that lived in Girardville and vicinity up from the breaker to slope in the empty mine cars with the locomotive, making it more convenient for them to reach their homes. At time of accident, it appears deceased was in the act of getting into one of the mine cars, when the engineer started to run the locomotive, thereby throwing deceased off the car, the oil-box catching, and rolling him against an embankment until the empty car next to locomotive had passed him. He rolled down the bank, the wheels of the locomotive passing over, and cutting off both his legs which caused his death in four days after accident.

Accident No. 7.—Bernard Harvey, door-tender, aged seventeen years, fa-

tally injured by being crushed between mine cars in Locust Spring colliery, September 12, 1885. He died from the injuries received in about ten minutes after accident. According to the evidence of Patrick Boyle, (driver,) he brought out a trip of four loaded cars to turn-out, conveniently west of dump chute. Deceased rode out on rear end of last car; on arriving on turn-out, Boyle unhitched his mules, turned them around, and took them in the gangway inside of loaded cars. Deceased and Boyle took out the sprags, and run in the first car and dumped it into chute, run it back and into gangway east of dump chute; they ran in the second car and dumped it. While the coal was running out of it, deceased went and pushed the first car that was dumped back further, so as to leave room for the balance of the cars when empty. After pushing it back far enough he came back, and was standing behind the car that was being dumped, when the third car came running in, and before deceased could get out of the way, he was caught between the two cars, receiving injuries which caused his death as stated.

ACCIDENT No. 8.—Samuel Hamilton, laborer, aged forty-six years, killed at Williamstown colliery, by being crushed under loaded mine car and tip, at breaker, on September 24, 1885. Single man. Evidence of Nicholas Adams, one of the tip men, "I work at Williamstown colliery, on breaker tip; was working on September 24. The accident occurred about three o'clock P. M. About one minute before, I saw him under the car on tip; I heard him halloo 'new chute,' meaning that the car that was about to be run in on tip should be dumped in that chute. He was then about between forty and fifty yards north of tip; he was on the west road leading into tip-house. When found under loaded car on tip, he was lying on his right side, his face toward north. I heard him groan once; that was the last sign of life I saw in him."

Evidence of William H. Morris: "When I was informed that there was a man under the car, I went over from the ticket box that was in tip-house, east of where accident occurred; I went over, saw deceased under the car; I helped to get him out. He was caught between the east bumper of car and cross-piece at head of dump chute. The cross-piece was put there to prevent the car tipping too high behind." By the evidence adduced, the deceased, in running in along with the car, in attempting to cross in front of it while in motion, slipped and fell, or was struck and knocked down with the car. No person could be found who saw the accident occur.

ACCIDENT No. 9.—Andrew Belostrari, slate-picker, aged seventeen years, killed in Luke Fidler colliery breaker, October 9, 1885, by putting his foot down through the hole or aperture in which the coal runs down to rollers. Deceased, at time of accident, was employed picking slate out of the coal as it ran down chute from counter screen to rollers. While thus engaged, unmindful of the danger, he put his foot down the hole or aperture, the rollers catching and drawing him in down to his hip, receiving injuries which caused his death. He was a single man.

Accident No. 10.—James Van Horn, laborer, aged thirty-one years, killed in Big Mountain colliery, October 23, 1885, by being crushed between top of loaded mine car and top rock. He left a wife. Deceased was employed driving and loading in straight vein drift. About between twelve and one o'clock p. m., he was taking out a trip of three cars, when at a point about two hundred and fifty yards inside of drift-mouth, in attempting to jump on the cars after spragging them, he was canght between top of second car and top rock, receiving injuries from which he died about twenty minutes after accident. In my investigation of this accident, I learned that deceased was cautioned not to attempt to get on the cars after spragging them to let the trip pass, and get on the hind end of last car.

Accident No. 11.—Dennis Donlon, laborer outside, aged sixty-four years, killed at Pennsylvania colliery, December 7, 1885, by being struck by dirt-car at bottom of dirt-plane. He left a wife and six children. Deceased, at time of accident, was employed at bottom of drift-plane. Between ten and eleven o'clock a. m., two empty dirt-cars were run over head of plane without the safety block being set in its place on rail or chain, and cable attached by the men on top of plane, the cars running down, one of them striking and killing deceased instantly.

Suffocated by Rush of Mud.

Accident No. 1.—James Ennis, miner, aged thirty-one years; Charles Dougherty, miner, aged . . . . . years; Michael Hede, laborer, aged thirty years; Martin McKeirns, driver, aged nineteen years. Suffocated by rush of mud, (mountain clay,) in Mammoth vein, east gangway. North Ashland colliery, May 13, 1885. Ennis left a wife and five children; Dougherty, a wife and four children; Hede, a wife; McKeirns was a single man.

Ennis and another miner, named Thomas Jones, had a contract to rob out the above-named gangway, and had Dougherty, Hede, McKeirns, with others employed.

Evidence taken at inquest held by Coroner Halberstadt.

George Edwards, *sworn:*

Am a miner, was working on day of accident timbering chute of breast No. 43, in east gangway, Mammoth vein. There was no rush of water came with the mud, neither did I, in cleaning up the mud, see any lodgments of water. I saw nothing unusual in robbing there more than in other collieries. I saw Charles Dougherty, James Ennis, and Michael Hede after they were found. I identified them by their features.

William Lovelle, *sworn:*

Previous to accident I was helping to rob out the Mammoth vein, west gangway of North Ashland colliery. On the fourth day after accident, I went to work in the Mammoth vein, east gagway, to clean up the mud. McKeirns was found in chute of breast No. 47; he was covered up with clay. The robbing is done there the same as at other collieries.

PATRICK F. HALEY, *sworn:*

I am a miner; I work in North Ashland colliery, helping to rob out the Mammoth vein, east gangway. I was working for Jones and Ennis. At time of accident, I was driving a cross-heading through pillar between Nos. 43 and 44 breasts. I heard a noise; I called out what is that; got no answer. I got down and ran out the gangway. There was no water came with the rush of mud. It came down the manway between Nos. 45 and 46 breasts. There was ice came down with the mud.

THOMAS SIMPSON, *sworn:*

I am a contractor robbing out the Mammoth vein, west gangway. I was helping to load or clean up the mud in the east gangway; I was there until we found Hede and Dougherty. The rule for robbing is to take all the coal that can be got with safety.

GEORGE MORRIS, *sworn:*

I am a chute starter. I went into east gangway in about half an hour after accident. I was there when Ennis was found in chute of breast No. 46. His body was covered with mud.

DAVID HUGHES, *sworn:*

I am a miner; am working in North Ashland colliery. I helped to recover McKeirns. I don't know anything about the accident. Am satisfied the timber that caught James Ennis was knocked out by the rush of clay. I helped to rob the Potts colliery, west gangway; we always took out all the coal we could with safety.

DAVID DAVIS, *sworn:*

Am a miner. I work at North Ashland colliery. Was not there on day of accident. I have been there since accident. I found McKeirns in chute of No. 47 breast on Saturday, June 6, about five and a half o'clock in the evening. The gangway seemed to be in good order.

MARTIN HEFFUN, *sworn:*

Am loader-boss at North Ashland colliery. When I got to the bottom of the slope on morning of accident, I met James Ennis. He said, "Martin, you and I will take a walk in to see if we can get the wagons on the turn-out." We found the gangway and turn-out in good condition. Ennis told me that Thomas told him that he (Jones) told him (Ennis) that there was a fall, and that he (Jones) heard the place working. Ennis said to me, "I guess we will get along all right." The first trip of four cars were loaded and hauled out. The second trip, which consisted of seven cars, were hauled in, four of them were left to be loaded outside of point where accident occurred. The other three were hauled in, one was left at forty-five chute, the other two were left at manway between forty-five and forty-six chute to be loaded. Ennis and Thomas Hede were standing on gangway alongside of car at manway between forty-five and forty-six. Michael

Hede was up in chute pushing coal down into car. I went out to forty-five chute where Charles Dougherty was starting the battery; I told him to take his time; there was only one car to be loaded at his chute. I told him I was going outside, and would be back in a short time, and help him to top off the car. While on my way out the gangway a concussion of air took place, which put out my light. I saw men running out the gangway; I called to them to come back; all hands were closed in. I saw Thomas Hede struggling in the mud; with the help of other men I pulled him out of it. There was no water came with the mud.

Christian Schaum, *sworn:*

I am inside foreman at North Ashland colliery. On morning of accident when I came to the office outside near breaker, James Ennis (deceased) told me that forty-five pillar had run last night, that Thomas Jones had told him. I said, "all right." When I went down into the mine, I first went into the Buck Mountain vein to see about the brattice that I was having put in. After I had visited that part of the workings, I went in the East Mammoth gangway. When in as far as No. 43, I felt a concussion of air. I went in and saw Thomas Hede caught in the mud. I helped other men and pulled him out of it. The pillar that ran was between Nos. 45 and 46 breasts; it was left to keep the turnout strong. We drove holes from face of breasts up through chain pillar at different points to let off any water that might be on old water-level gangway.

Michael Horan, *sworn:*

I am repairman at North Ashland colliery. I worked on night previous to accident. I heard the fall and concussion of air. I went in along gangway and up manway between forty-five and forty-six breasts. The place was working. I said to Thomas Jones the place was not safe, let us get out of here. We went outside and made our shift timbering in gangway. We cut no coal that night.

John Hinkle, *sworn:*

I am outside foreman at North Ashland colliery. There was no water in breach hole over where the rush of clay came from.

Patrick McHale, *sworn:*

I am a miner, and work in North Ashland colliery. Was working on night previous to accident. Heard the concussion of air. Jones said the gangway was closing. We went in. The coal was working. The rush was up in the breast. It did not do any damage to the gangway.

Thomas Jones, *sworn:*

James Ennis and myself had the contract of robbing out the gangway. I was working by night that week. Was working on night previous to accident. I heard a racket about three o'clock in the morning; it lasted about eight or nine minutes. The cause of the racket was the wind,

which would first go one way or direction then in another. I told James Ennis (my partner) next morning of what I had heard and seen; I told him not to allow any person to load off the road that morning. The place was robbed like all other places.

JOHN VEITH, *sworn:*

I am mining superintendent. Was at North Ashland colliery on day of accident. Our rule is to put in sufficient timber to keep the working places safe, and allow no undue robbing.

[Attached to this report is a sketch showing where the victims of this disaster were found.]

TABLE I.—*Showing location of collieries in the Sixth Anthracite Mine District of Pennsylvania.*

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Post-Office Address.
Bast,	Philadelphia and Reading Coal and Iron Co.,	Big Mine Run, Schuylkill co.,	John Carl,	Mt. Carmel, Northumberl'd co.
Burnside,	do. do.	Carbon Run, Northumberl'd co.	Monroe T. Schreffler,	Shamokin, do.
Bear Valley,	do. do.	Bear Valley, do.	do.	do. do.
Big Mountain,	Patterson & Llewellyn,	Shamokin, do.	David Llewellyn,	do. do.
Black Diamond,	Schwenk, Robertson & Co.,	Mt Carmel twp., do.	Schwenk & Robertson,	Mt. Carmel, do.
Big Miue Run,	Jeremiah Taylor,	Big Mine Run, Schuylkill co.,	Jeremiah Taylor,	Ashland, Schuylkill county.
Bellmore,	S. S Beckel & Co.,	Conyngham twp., Columbia co.,	Tobias Bickel,	Mt. Carmel, Northumberl'd co.
Buck Ridge,	Philadelphia and Reading Coal aud Iron Co.,	Coal twp., Northumberland co.,	Monroe T. Schreffler,	Shamokin, do.
Centralia,	Lewis A. Riley & Co.,	Centralia, Columbia co.,	Edward Reese,	Centralia, Columbia county.
Continental,	Lehigh Valley Coal Company,	Conyngham twp., Columbia co.,	A. D. Brown,	do. do.
Cameron,	Mineral Railroad and Mining Co.,	Shamokin, Northumberland co.	Holden Chester,	Shamokin, Northumberland co.
Excelsior,	Excelsior Coal Mining Company,	Coal twp., do.	Andrew Robertson,	do. do.
Enterprise,	Thomas Baumgardner & Co.,	do. do.	Joseph Boden,	Excelsior, do.
Garfield,	Garfield Coal Company, Limited,	do. do.	William H. Douty,	Shamokin, do.
Helfenstein,	Philadelphia and Reading Coal aud Iron Co.,	Helfenstein, do.	John Carl,	Mt. Carmel, do.
Heury Clay, No. 1,	do. do.	Shamokin, do.	Monroe T. Schreffler,	Shamokin, do.
Hickory Ridge,	Mineral Railroad and Mining Company,	Coal twp., do.	Holden Chester,	do, do.
Hazle Dell,	Lewis A. Riley & Co.,	Conyngham twp., Columbia co.,	Edward Reese,	Centralia, Columbia county.
Hickory Swamp,	Union Coal Company,	Coal twp., Northumberlaud co.,	Edwin Ludlow,	Shamokin, Northumberland co.
Keystoue,	Philadelphia and Reading Coal and Iron Co.,	Locust Dale, Schuylkill co.,	John Carl,	Mt. Carmel, do.
Locust Gap,	do. do.	Locust Gap, Northumberl'd co.,	Monroe T. Schreffler,	Shamokin, do.
Locust Spring,	do. do.	do. do.	do.	do. do.
Locust Run,	do. do.	Conyngham twp., Columbia co.,	John Carl,	Mt. Carmel, do.
Luke Fidler,	Mineral Railroad and Mining Company,	Coal twp., Northumberland co.,	Holden Chester,	Shamokin, do.
Lancaster,	Smith & Keiser,	do. do.	Smith & Keiser,	do. do.
Logan,	Lewis A. Riley & Co.,	Conyngham twp., Columbia co.,	Edward Reese,	Centralia, Columbia county.
Monitor,	Philadelphia and Reading Coal and Iron Co.,	Locust Gap, Northumberland co.	Monroe T. Schreffler,	Shamokiu, Northumberland co.
Merriam,	do. do.	Mt. Carmel twp., do.	John Carl,	Mt. Carmel, do.
Mt. Carmel Shaft,	do. do.	do. do.	Mouroe T. Schreffler,	Shamokin, do.
Mt. Carmel,	Thomas M. Righter & Co.,	do. do.	Thomas M. Righter,	Mt. Carmel, do.
Morris Ridge,	Isaac May & Co.,	Couyngham twp., Columbia co.,	{Jas. May, out-side; Geo. Troutman, inside.	Shamokin, do.
North Franklin, No. 1,	Philadelphia and Reading Coal and Iron Co.,	Trevortou, Northumberl'd co.,	Monroe T. Schreffler,	do. do.
North Franklin, No. 2,	do. do.	do. do.	do.	do. do.
North Ashland,	do. do.	Conyngham twp., Columbia co.,	John Carl,	Mt. Carmel, do.
Neilson Shaft,	J. Langdou & Co.,	Shamokin, Northumberland co.	A. H. Storrs,	Shamokin, do.
Peerless,	Philadelphia and Reading Coal and Iron Co.,	do. do.	Monroe T. Schreffler,	do. do.
Potts,	do. do.	Locust Dale, Schuylkill co.,	John Carl,	Mt. Carmel, do.
Pennsylvania,	Union Coal Company,	Mt. Carmel, Northumberl'd co.	Edwin Ludlow,	Shamokin, do.
Reliance,	Philadelphia aud Reading Coal and Iron Co.,	do. do.	John Carl,	Mt. Carmel, do.
Royal Oak,	Tillet & Brother,	Shamokin, do.	Tillet & Brother,	Shamokiu, do.
Stirling,	Kendrick & Co.,	Carbon Run, do.	William Berry,	do. do.
Short Mountain & Lykens Valley,	Lykens Valley Coal Company,	Wicouisco twp., Dauphin co.,	Thomas M. Williams,	Lykens, Dauphin county.
Star,		Coal twp., Northumberland co.,	{And. G. White, inside, & John Shaw, outside,	Shamokin, Northumberland co.
Tunnel,	Philadelphia and Reading Coal and Iron Co.,	Ashland, Schuylkill co.,	John Carl,	Mt. Carmel, do.
Williamstown,	Summit Branch Railroad Company,	Williams twp., Dauphiu co.,	Thomas M. Williams,	Lykens, Dauphin county.

TABLE II.—*Showing Character of Coal, Production, Number of Employés, Days Employed, Casualties, &c., in the Sixth Anthracite Mine District, for the year ending December 31, 1885.*

COLLIERIES.	Operators.	Character of Coal, Anthracite or Semi-Anthracite, Bituminous or Semi-Bituminous.	Drift, slope, or shaft.	Number of inside workmen.	Number of outside workmen.	Total employees.	Number of days worked inside.	Number of days worked outside.	Number of horses and mules.	PRODUCTION.		CASUALTIES.				
										Number of tons produced.	Number of tons shipped.	Killed inside.	Killed outside.	Injured inside.	Injured outside.	Total killed and injured.
Bast,	Phila. and Reading C. and I. Co.,	Anthracite.	2 Slopes,	189	191	380	280	230	36	123,162.16	116,191.01	..	..	1	1	2
Burnside,	do. do.	do.	2 Sl's & 1 T'l.,	167	154	321	229.75	229.75	33	99,455.18	93,826.05	..	..	2	1	3
Bear Valley,	do. do.	do.	1 Shaft,	158	167	325	237.75	237.75	44	98,439.05	92,867.04	2	..	2	1	5
Big Mountain,	Patterson & Llowellyu,	do.	1 Sl'e & 6 D'fts	339	136	475	269.50	269.50	70	162,235.03	155,569.18	1	..	3	1	5
Black Diamond,	Schwenk, Robertsou & Co.,	do.	1 Slope,	40	42	82	174.9	174.9	5	24,454.17	23,304.17	1	..	2	..	3
Big Miuo Rnn,	Jeremiah Taylor,	do.	1 Sl'e & 2 D'fts	260	185	445	217.75	217.75	40	150,274.18	146,750.18	1	..	1	1	3
Bellmore,	S. S. Bickel & Co.,	do.	1 Sl'o & 1 T'l.,	131	135	266	190.2	190.2	28	66,767.16	66,102.06	..	..	..	..	..
Buck Ridge,	Phila. and Readiug C. and I. Co.,	do.	2 Slopes,	..	2	2	No	work du	riug	yeer. No	production.					
Centralia,	Lewis A. Riley & Co.,	do.	2 Slopes,	157	223	380	210.65	210.65	30	188,112.02	178,092.02	..	1	..	2	3
Continental,	Lehigh Valley Coal Compauy,	do.	2 Sl's & 1 T'l.,	6	13	19	.....	.....	1	No	production.	Col	lio	ry	idl	e.
Cameron,	Mineral Railroad and Miu'g Co.,	do.	3 Sl's & 4 D'fts	528	220	748	301.25	301.25	89	245,436.09	230,094 09	..	..	10	..	10
Excelsior,	Excelsior Coal Miuiug Company,	do.	2 Sl's & 3 D'fts	252	149	401	296.1	296.1	41	177,177.12	167,149.08	1	..	8	..	9
Enterprise,	Thomas Baumgardner & Co.,	do.	3 Slopos,	338	136	474	240.25	240.25	37	132,851.04	127,366.19	..	..	1	..	1
Garfield,	Garfield Coal Compauy, Lim.,	do.	1 Slope,	54	34	88	158.75	158.75	11	20,242.16	19,995.16	2	..	2	2	6
Helfenstein,	Phila. and Readiug C. and I. Co.,	do.	1 Slope,	..	2	2	.....	.....	..	No	production.	Col	lie	ry	idl	e.
Henry Clay Shaft,	J. Langdon & Co., and Phila. and Reading C. and I. Co.,	do.	1 Sh'ft & 2 Sl's	13	29	42	.....	.....	12	No	production.					
Hickory Ridge,	Phila. and Reading C. and I. Co.,	do.	2 Slopes,	139	79	218	294 8	294.8	25	44.855.07	41,649.07	2	..	4	..	6
Hazle Dell,	Lewis A. Riley & Co.,	do.	1 Sl'e & 1 T'l.,	148	15	163	210.65	210.65	27	Coal prepar	ed Centralia	br'	ker	1	..	1
Hickory Swamp,	Union Coal Compauy,	do.	1 Sl'e & 3 D'fts	205	126	331	235.50	235.50	36	66,011.02	61,250.02	1	..	3	..	4
Keystone,	Phila. and Readiug C. and I. Co.,	do.	2 Slopes,	12	12	24	Idle.		23	No	productiou.	Col	lie	ry	idl	o.
Locust Gap,	do. do.	do.	2 Slopes,	126	160	286	185.25	185.25	26	59,260,19	55,915.18	..	..	3	..	3
Locust Spring,	do. do.	do.	1 Slope,	253	157	410	203.50	203.50	43	115,180.16	108,661.14	1	..	1	..	2
Locust Run,	do. do.	do.	1 Slope,	2	13	15	Idle.			No	shipments.	Col	lio	ry	idl	e.
Luke Fidler,	Mineral Railroad and Min'g Co.,	do.	1 Sh'ft & 3 Sl's	284	155	439	291.95	291.95	54	146,875.16	139,845.16	1	2	12	4	19
Lancaster,	Smith & Keiser,	do.	4 Drifts,	33	24	62	89.25	89.25	13	7,903.10	7,770.00					
Logau,	Lewis A. Riley & Co.,	do.	4 Slopes,	384	241	625	195.3	195.3	51	212,315.17	199,711.07	2	..	1	..	3
Monitor,	Phila. and Reading C. and I. Co.,	do.	3 Slopes,	238	147	385	231	231	39	142,491.12	134,326.03	1	..	1	..	2
Merriam,	do. do.	do.	2 Slopos,	273	184	462	212.25	212.25	49	121,528.00	114,648.15	1	..	2	..	3
Mt. Carmel Shaft,	do. do.	do.	1 Shaft,	339	209	548	222.75	222.75	68	215,596.12	203,392.15	2	..	2	..	4
Mt. Carmel,	Thomas M. Righter & Co.,	do.	2 Slopes,	250	136	386	212.1	212.1	40	129,933.17	126,747.17	..	..	4	..	4
Morris Ridge,	Isaac May & Co.,	do.	1 Sl'e & 1 D'ft	175	121	296	226.25	226.25	19	105,684.15	102,004.15	2	..	1	..	3
North Franklin, No. 1,	Phila. and Reading C. and I. Co.,	do.	1 Sl'e & 2 D'fts	..	2	2	Idlo.			No	shipments.	Col	lie	ry	idl	o.

North Franklin, No. 2,	do.	do.	do.	1 Sl'e & 1 D'ft	143	142	285	240.50	240.50	41	115,231.10	108,708.17	. .	. .	1	. .	1
North Ashland, ...	do.	do.	do.	1 Slope, . .	13	49	62	68	68	7	37,702.02	35,568.11	5	. .	3	. .	8
Neilson Shaft, ...	J. Langdon & Co., ...		do.	1 Sh'ft, sink'g	22	22	44	Sink	ing.	8	No	shipments.	. .	. .	. .	1	1
Peerless, ...	Phila. and Reading C. and I. Co.,		do.	1 Sl'e & 1 T'l.,	164	106	270	174	174	17	45,592.14	43,011.17	. .	. .	. .	. .	. .
Potts, ...	do.	do.	do.	2 Slopes, . . .	. . .	3	3	Idle.			No	shipments.	Col	lie	ry	idl	e.
Preston, No. 2, ...	do.	do.	do.	1 Slope, . . .	66	124	190	159.50	159.50	31	48,059.07	45,339.11	1	. .	. .	. .	1
Preston, No. 3, ...	do.	do.	do.	2 Slopes, . . .	147	140	287	229	229	47	78,408.04	73,970.08	. .	1	. .	. .	1
Pennsylvania, ...	Union Coal Company, ...		do.	4 Slopes, . . .	472	231	703	147.25	147.25	74	108,188.14	98,640.19	1	1	9	. .	11
Reliance, ...	Phila. and Reading C. and I. Co.,		do.	2 Slopes, . . .	161	139	300	228.25	228.25	35	122,116 05	115,204.00	1	. .	1	. .	2
Royal Oak, ...	Tillet & Brother, ...		do.	2 Drifts, . . .	19	11	30	188	188	3	4,278.15	3,668.15	. .	. .	. .	. .	. .
Sterling, ...	Kendrick & Co., ...		do.	1 Slope, . . .	165	114	279	221.50	221.50	24	86,669.03	86,243.18	. .	. .	5	. .	5
Short Mt. & Lyk's Val.,	Lykens Valley Coal Company, .		do.	3 Sl's & 4 D'fts	636	425	1,061	298.75	298.75	191	217,174.03	189,578.18	3	1	12	3	19
Star, ...	. . . . .		do.	1 Slope, . . .	53	43	96	92	92	5	6,814.19	6,614.19	. .	. .	. .	. .	. .
Tunnel, ...	Phila. and Reading C. and I. Co.,		do.	2 Slopes, . . .	167	179	346	232.75	232.75	38	134,456.05	126,846.01	. .	. .	1	. .	1
Williamstown, ...	Summit Branch Railroad Co., .		do.	5 Sl's & 1 T'l.,	780	364	1,144	294.75	294.75	162	344,479.17	314,574.11	1	4	10	2	17
Grand totals, . . .	. . . . .		. . . . .	. . . . .	8,511	5,691	14,202	8,091.65	8,091.65	1,673	4,205,420.17	3,961,206.17	. .	. .	. .	. .	. .

TABLE No. III.—*List of Fatal Accidents occurring in the Mines of the Sixth Anthracite district, for the year ending December 31, 1885.*

Date of accident.	Name of persen injured.	Age.	Married or single.	Number of orphans.	Name of Celliery.	Lecatien—County.	Date of investigation.	Nature and Cause of Accident in Brief.
Jan. 5	Thomas Langhlin, miner,	50	Married,	5	Garfield,	Shamokin, Northumber'd co.	Jan. 7	Fatally injnred by falling down slope; died abont two henrs after receiving injury.
26	John Doyle, miner,	47	Married,	4	Logan,	Centralia, Columbia co.,	27	Died from injnries received Jan'y 10, by falling down cross-hole, running from blast.
29	Charles James, miner,	33	Married,	1	Garneld,	Shamokin, Northumber'd co.	31	Died same day of injnries received from explosion of dualin.
Feb. 6	J. A. Kreiser, slate-picker,	14	Single,		West Brookside,	Porter, twp., Schuylkill co.,	Feb. 9	Fatally injnred, being caught in breaker elevater; died abont two hours after accident.
24	James Manning, miner,	42		2	Monnt Carmel Shaft,	Mt. Carmel tp., North'd co.,	27	Killed by a fall of top coal.
28	T. Challenger, slate-picker	13	Single,		Williamstown Colliery,	Williamstown, Danphin co.,	Mar. 2	Killed; run ever by loaded dirt cars while on his way home from work.
Mar. 14	Thomas Berry, miner,	31	Married,	3	Williamstown Colliery,	do. do.	16	Died from injnries received the day previons, being rnn over by mine cars.
30	John Rigotti, miner,	40	Married,	5	Pennsylvania Colliery,	Mt. Carmel tp., North'd co.,	31	Died from injnries received on the 23d, by a prematnre blast.
April 2	John Sproats, miner,	28	Married,	4	Nerth Ashland,	Dark Corner, Columbia co.,	Apr. 3	Killed by a fall of top coal.
8	T. Hollingsworth, miner,	43	Married,	4	Presten No. 2,	Girardville, Schuylkill co.,	reported slightly.	Died from injuries received March 11; hand canght between lnmp of coal and top of car.
25	John Petrohnfskie, miner,	45	Married,	1	Hickory Swamp,	Coal twp. Northnmber'd co.,	Apr. 28	Killed by fall of top slate.
May 8	John Zerron, miner,	37	Single,		Black Diamond,	Mt. Carmel tp., North'd co.,	May 9	Killed by fall of top coal.
9	E. Sadnskie, slate-picker,	14	Single,		Luke Fidler,	Shamokin, Northnm'd co.,	12	Suffocated by steam.
11	Martin Laville, do.	14	Single,		Centralia,	Centralia, Columbia co.,	12	Died from injnries received by being run over by big railroad cars.
13	Chas. Dougherty, miner,		Married,	4	North Ashland,	Dark Cerner, Colnmbia co.,	13	Killed; snffocated by rnsh of mnd.
13	Michael Hede, laborer,	30	Married,		do.	do. do.	13	do. do. do.
13	James Ennis, miner,	31	Married,	5	do.	do. do.	13	do. do. do.
13	Martin McKurns, driver,	19	Single,		do.	do. do.	13	do. do. do.
22	James Kilmurray, miner,	34	Married,		Hickory Ridge,	Coal twp. Northumber'd co.,	25	Killed by falliug down manway.
28	Peter Starkiskie, miner,	28	Married,	2	S. Mountain and Lykens Val.,	Wicenisco, Danphin co.,	29	Killed by fall of top slate.
June 11	Israel Morgan, miner,	44	Married,	6	West Breokside,	Porter twp., Schuylkill co.,	June 12	do. do.
12	John Meiskie, miner,	27	Single,		Hickory Ridge,	Coal twp. Northnmber'd co.,	15	Fatally injured; fell down manway. Died same day.
17	James Norrance, miner,	53	Married,	2	Bear Valley,	do. do.	18	Killed by fall of loose coal and dirt, while pntting in a relief battery.
18	Den's Cannon, bot'm-man,	26	Single.		Williamstown,	Danphin connty,	19	Killed; struck by mine car-hooks, while cars were being hoisted up No. 4 slope.

	22	John Glinskie, miner, . . .	53	Married,	4	Excelsior, ...	Coal twp. Northumber'd co.,	23	Died from injuries received on the 15th, by the explosion of a keg of powder.
	29	E. P. Hughes, slate-picker,	10	Single, . .		Preston No. 3, ...	Girardville, Schuylkill co., .	30	Died from injuries received on the 25th; run over by mine cars and locomotive.
July	2	Michael Cuff, laborer, . .	34	Single, . .		Morris Ridge, ...	Conyngham tp., Colum'a co.,	July 3	Killed by a fall of top slate.
	4	Joseph Lester, engineer, .	51	Married,	5	Williamstown, ...	Dauphin county, ...	6	Killed by explosion of steam-boiler.
	13	Geo. Machamer, laborer, .	22	Single, . .		S. Mountain and Lykens Val.,	Lykens, Dauphin county, . .	14	Died from injuries on the 10th, by fall of coal.
	29	J. Dunlap, Jr., slate-picker	12	Single, . .		do. do.,	Wiconisco, Dauphin co., . .	30	Run over by cars; died same evening.
Sept.	12	B. Harvey, door-tender, .	17	Single, . .		Locust Spring, ...	Locust Gap. Northum'd co.,	Sep. 14	Killed; crushed between mine cars.
	16	John Moss, miner, ...	34	Married,	2	Reliance, ...	Mt. Carmel, Northum'd co.,	17	Killed by fall of top slate.
	24	Samuel Hamilton, laborer,	46	Single, . .		Williamstown, ...	Dauphin county, ...	25	Killed; crushed between car and breaker.
Oct.	1	Lewis Woodside, laborer, .	14	Single, . .		S. Mountain and Lykens Val.,	Wiconisco, Dauphin co., . .	Oct. 3	Killed by fall of top slate.
	3	John Diminskie, laborer, .	43	Married,	. .	Merriam, ...	Locust Summit, North'd co.,	7	Died; injured by fall of coal September 14.
	9	A. Beloshara, slate-picker,	17	Single, . .		Luke Fidler, ...	Shamokin, Northum'd co., .	9	Killed; caught in breaker rollers.
	13	Henry Constantine, miner,	44	Married,	4	Morris Ridge, ...	Conyngham tp., Colum'a co.,	14	Killed by fall of top rock.
	23	James Van Horn, laborer,	31	Married,	. .	Big Mountain, ...	Coal twp. Northumber'd co.,	24	Killed; crushed between top of car and rock.
	31	Charles Shultz, miner, . .	31	Married,	2	Bear Valley, ...	do. do.	Nov. 2	Fell down manway; smothered by loose coal and dirt.
	31	Donfit Roefski, laborer, . .	25	Married,	2	Mount Carmel Shaft, ...	Mt. Carmel tp., North'd co.,	2	Killed by fall of top coal.
Nov.	10	William Clemens, miner, .	35	Married,	1	Monitor, ...	do. do.	. . . . .	Died; injured by fall of top rock October 29.
	25	Lawrence Cannon, laborer,	18	Single, . .		Big Mine Run, ...	Butler twp., Scuuylkill co., .	22	Fatally injured by fall of coal on the 20th.
Dec.	7	Dennis Donlon, laborer, .	64	Married,	6	Pennsylvania, ...	Mt. Carmel tp., North'd co.,	Dec. 8	Killed at breaker; struck by empty cars pushed overhead without attaching the chain.
	7	Ralph Kirby, miner. . . .	44	Married,	1	Logan, ...	Centralia, Columbia co., . .	. . . . .	Died; injured by fall of coal October 16.
	30	William H. Meck, miner, .	52	Married,	. .	Luke Fidler, ...	Shamokin, Northum'd co., .	Jan. 1	Fatally injured by a fall of top slate; died while being removed to his home.

REGISTER OF NON-FATAL CASUALTIES—*Sixth Anthracite District, for the year ending December 31, 1885.*

DATE.	Names.	Colleries.	Occupation.	Remarks.
Jan. 3	Jacob Weikle,	Merriam,	Miner,	Leg broken by a fall of coal.
3	August Woller,	Monitor,	do.	Arm broken by a piece of rock falling on him.
8	Joseph Tedrick,	Hickory Ridge,	do.	Injured by a prematnre blast.
9	George Phillips,	Sterling,	Driver,	Arm broken by being caught between mine cars.
12	Siduey Challinger,	Williamstown,	Miner,	Injured about head and body by a fall of top slate.
13	John Garret,	Sterling,	do.	Arm broken by falling off mine car.
13	Andrew Dubinskir,	Luke Fidler,	do.	Arm broken by fall of slate.
16	Patrick Martin,	Williamstown,	do.	Slightly bnrued by carburetted hydrogen gas.
21	August Kline,	Luke Fidler,	do.	Foot hurt by a lump of rock falling on him.
Feb. 3	A. A. Martin,	Pennsylvania,	do.	Seriously injured about head by a premature blast.
3	Pinaminto Francisco,	do.	do.	Seriously injured about head by a premature blast.
6	George Henry,	Cameron,	Driver,	Leg injured by mine car running over it.
6	Themas Narcavitch,	do.	Miner,	Hurt by a fall of coal.
9	Charles Berry,	do.	Driver,	Foot mashed by being crushed between bnmpers of mino cars.
12	Lawrence Haile,	do.	do.	Arm broken by being caught between mine car aud clnte.
13	Ernst Leuschner,	West Brookside,	Tipman,	Small bone of leg broken by mule knocking him down and tramping on him.
14	Reuben Ball,	Hazle Dell,	Miner,	Injured about body by a fall of coal and rock.
16	Joseph Groginskir,	Luke Fidler,	do.	Leg broken by a fall of coal.
18	Joseph Ducemau,	Bear Valley,	Platform-man,	Head iujured by being struck with handlo of windlass.
18	Michael Cnff,	North Ashland,	Loader,	Arm broken by being crushed between miue cars.
18	Dauiel Evans,	Mt. Carmel shaft,	Miner,	Two ribs broken and cut on head by mine car door falling on him.
21	John Seymour,	Centralia,	Car leader,	Foot injured by beiug crushed betweeu the bumpers of cars.
21	John Kealy,	do.	Slate-picker,	Leg broken by him falling about fifteen feet.
25	Lewis Kniley,	Lykens Valley,	Miuer,	Injured by a fall of slate.
26	William Hutchinson,	Luke Fidler,	Inside boss,	Burued on hands aud face CH gas.
26	John O. Buskie,	do.	Bratticeman,	Iujured by being knocked under mine cars at bottom of slope.
26	Frank Klemack,	do.	do.	Injured by being knocked nnder mine cars at bottom of slope.
25	Ralph Dubiuskie,	do.	Miner,	Burned on face, arm, aud right hand by CH gas.
March 2	Albert Shultz,	Camerou,	do.	Iujured by a prematnre blast.
2	Peter Gottshall,	do.	do.	Injured by a fall of top ceal.
7	Anthony Joblinskie,	Luke Fidler,	do.	Leg broken by a fall of coal.
9	George Hohl,	Pennsylvania,	do.	Slightly burned on face and hands by CH gas.
9	Michael Cavanagh,	Big Mouutain,	do.	Injured by falling down his breast.
10	Leenard Glessner,	North Ashlaud,	do.	Rib aud collar boue brekeu by a fall of top slate.
11	John Griffiths,	Excelsior,	do.	Arm broken and aukle dislocated by a fall of top slate.
13	John Campboll,	Garfield,	Car-loader,	Leg broken by being struck by empty oil barrel rolling down hill.
14	Andrew Shushock,	Excelsior,	Laborer,	Leg broken by a fall of coal.
14	William H. Magniu,	W. Brookside,	do.	Small bone of leg brokeu by a fall of slate.
16	Johu Gliuskie,	Camerou,	Miner,	Leg broken by a fall of coal.
18	Andrew Koudro,	Sterliug,	do.	Burned on hands and face by CH. gas.
21	Johu Wells,	Bast,	do.	He fell on a drill and injured his stomach.
23	Anthony Bebaluskie,	Mt. Carmel,	do.	Head cut by a fall of rock.
April 4	John Snyder.	Black Diamond,	do.	Ankle hurt by a lump of coal crushing it agaiust a prop.
9	John Ebey,	Burnsido,	do.	Ribs fractured and back bruised by beiug kuecked down clnte by a lump of coal.
15	David Wagner,	Broekside,	Laborer,	Collar bone broken by being kuocked against a mine car by a mule.
18	Richard Knorr,	Brookside,	Car-oiler,	Arm broken by being crushed between mine cars while oiling tbem.

	20	Edwin Sobey,	Tunnel,	Laborer,	Leg broken by a prop falling on him.
	21	Thomas Neary,	Merriam,	Miner,	Rib fractured by a fall of coal.
	25	August Danbert,	Cameron,	do.	Leg crushed by a fall of coal.
	25	Anthony Bowen,	Neilson shaft,	Topman,	Leg crushed by ropo steadier.
May	1	Mart Bowman,	Bear Valley,	Miner,	Ribs broken and back injured by a fall of coal.
	2	John Roditta,	Pennsylvania,	do.	Back hurt by a fall of rock.
	5	George Wilt,	Short Mountain and Lykens Valley,	do.	Leg broken by mine cars runniug over him.
	9	William Cattigan,	Luke Fidler,	Slate-picker,	Slightly scalded by steam.
	9	John Bloskie,	do.	do.	Slightly scalded by steam.
	9	Mark Maloney,	do.	do.	Slightly scalded by steam.
	9	Evan Thomas,	do.	Laborer,	Slightly scalded by steam.
	13	Thomas Hide,	North Ashland,	Miner,	Leg and arm broken; body injured by a rush of mountaiu clay filling gangway, and covering him almost.
	15	Anthony Bobolinskie,	Mt. Carmel,	do.	Left hand seriously injured by a fall of coal; amputated afterwards.
	21	William Borrower,	Morris Ridge,	do.	Ankle injured by a fall of coal.
	22	William McKeon,	Preston, No. 2,	Loader,	Hips injured by being crushed between mine cars and timber.
	22	Samuel Derr,	Burnside,	Dirt bank driver	Hips and lower limbs injured by being crushed between mule and mine car.
	23	Daniel Updegrave,	Williamstown,	Miner,	Slightly burued about the face and hands by CH. gas.
	25	Michael Madden,	Hickory Swamp,	do,	Iujured about head and face by a premature blast.
June	3	Moses Deitrick,	Brookside,	do.	Back cut and bruised by a fall of slate.
	4	Michael Ague,	Big Mountain,	do.	Back broken by a fall of top coal.
	4	John Dull,	West Brookside,	do.	Small bone of leg broken by a fall of coal and slate.
	11	Joseph Fisher,	Mt. Carmel shaft,	do.	Two ribs broken; he fell on side of mine car.
	11	Joseph Wilcom,	Luke Fidler,	do.	Leg brokeu and hip dislocated by a fall of coal.
	12	Henry Kindler,	Short Mountain and Lykens Valley,	do.	Legs badly bruised by a fall of rock.
	12	Lafayette Dietrich,	Short Mountain slope,	Eugineer,	Hand torn badly by the explosion of a dualin cap.
	15	John Harbold,	Mt. Carmel,	Driver,	Small bone of leg broken by miue car jumping the track.
	15	Martin Kutkoskie,	Excelsior,	Miner,	Burued on face, neck, and hands by an explosion of a keg of powder.
	19	Samuel Tobias,	Garfield,	Slate-picker,	Right arm almost torn off by being caught by universal coupling counecting grindstone [to fan shaft.
	22	George Leonard,	West Brookside,	Miner,	Leg broken by being caught between bottom slate and prop.
	25	Paul Dick,	Hickory Ridge,	Driver,	Crushed about the head and body by beiug caught betweeu mine car and side of gangway.
	27	Emanuel G. Witmer,	Lykeus Valley,	do.	Arm mashed by mine cars runuiug over it.
July	14	Edward Roshen,	North Frankliu, No. 2,	Door-tender,	Head and breast bruised; caught between mine car and chute.
	14	Herman Brauer,	Short Mountain and Lykens Valley,	Miner,	Arm broken by falling down a manway.
	22	Nicholas Luchiuskie,	Mt. Carmel,	do.	Back iujured by a fall of rock.
	29	Joseph Jamison,	Short Mountain and Lykens Valley,	Laborer,	Leg broke and cut on arm by a lump of rock bumping out on him.
	30	W. P. Cashman,	Hickory Swamp,	Miner,	Iujured by a premature blast.
	31	John Evaus,	Penusylvauia,	Repairsman,	Toe broken.
Aug.	5	Solomon C. Wehry,	Garfield,	Miner,	Injured by a fall of coal.
	5	John Yorges,	Peunsylvania,	do.	Hurt by a fall of rock.
	11	Patrick Dougherty, junior,	Big Mine Run,	Laborer,	Head and back hurt by a fall of bone coal.
	15	William McCoy,	Short Mountain and Lykens Valley,	Car-oiler,	Leg broken by a mine car jumping the track and jamming him.
	21	Mathias Grutleban,	Locust Gap,	Driver,	Head and breast iujured; he fell off mule, and a trip of loaded cars ran over him.
	22	John Sierer,	Short Mountain and Lykens Valley,	do.	Arm broken by being caught between mine cars and platform.
	31	John Schlachis,	Excelsior,	Miner,	Hurt by a fall of coal.
	31	John Herbert,	do.	Laborer,	Iujured about hips and body by being caught between miue car and schute.
Sept.	3	Martiu O'Malley,	Locust Spring,	Loader,	Leg broken and bruised about the head and breast by being ruu over mine by car iu slope.

REGISTER OF NON-FATAL CASUALTIES.—*Continued.*

DATE.	Names.	Collieries.	Occupation.	Remarks.
Sept. 10	William H. Meck,	Luke Fidler,	Miner,	Leg hurt by fall of coal.
14	Anthony Socha,	do.	do.	Burned on face, neck, and hands by CH gas.
14	John Harlaher,	Garfield,	do.	Three ribs broken by a fall of top slate.
21	Felix Strausser,	Bear Valley,	Loader,	Leg broke; a lump of coal fell on him.
25	John Hines,	Williamstown,	Laborer,	Leg cut off by jumping and falling under loaded mine cars on top of No. 3 Slope.
28	Daniel Davis,	Excelsior,	Miner,	Burned on face, neck, arms, and hands by CH gas.
28	John Jones,	do.	Laborer,	Burned on face, neck, arms, and hands by CH gas.
Oct. 1	George Fry,	Williamstown,	Slate-picker,	Leg crushed by cog wheel in breaker; amputated afterwards.
2	Richard Evans,	do.	Miner,	Injured by a premature explosion of dualin while ramming it to back of rock hole.
2	William Murray,	do.	do.	Skull fractured and otherwise injured by same explosion.
2	Frank Jenuings,	do.	do.	Injured by same explosion.
2	Edward Rontzaher,	do.	do.	Injured by same explosion.
10	Gurney Kissinger,	Short Mt. & Lyk's Val.,	Loco. cond'tor,	Foot mashed by being run over by locomotive.
13	Charles Wilcofskei,	Excelsior,	Laborer,	Injured by being crushed between mine car and prop.
14	Patrick McGinley,	Logan,	Miner,	Injured by a fall of coal.
16	George Taylor,	Bast,	Carpenter,	Bruised and shaken by falling about 18 feet off scaffold.
19	Daniel Jones,	Short Mt. & Lyk's Val.,	Driver,	Injured about body by being run over by mine cars.
21	Jacob Ashton,	Reliance,	Miner,	Head cut and 2 ribs broken by a fall of top coal.
24	Edward Purcell,	Hickory Ridge,	do.	Hurt by a fall of top coal.
26	Albert Polerc,	Williamstown,	Door-tender,	Seriously injured by being crushed between mine cars.
26	Jesse Lewis,	do.	Slate-picker,	Thigh bruised by a piece of slate falliug ou him.
29	Frank Willard,	Sterling,	Miner,	Burned on hands and face by CH gas.
29	Frank Wisiniskii,	do.	do.	Burned on hands and face by CH gas.
31	Joseph Barron,	Luke Fidler,	Fan-boy,	Fingers mashed by being crushed in fan cog wheel.
Nov. 4	Enos McPherson,	Cameron,	Driver,	Hurt abont body by mine car running over him.
6	Michael Bnsham,	Pennsylvania,	Miner,	Knee hurt by a fall of top coal.
10	J. E. Miller,	do.	Driver,	Ankle dislocated by jumpiug off mine car.
10	John Keene,	Black Diamond,	Miner,	Hurt by a fall of top coal.
11	George Woffenden, Sr.,	Williamstown,	Outside laborer,	Two fingers cut off and hand badly lacerated by transmission of wire rope.
12	Reuben Campbell,	Cameron,	Repairman,	Foot badly crushed by fall of top slate.
14	Edward Brennan,	Locust Gap,	Driver,	Thigh-bone broken by being caught between mine car and door frame.
16	John Taylor,	Short Mt. & Lyk's Val.,	Miner,	Thigh and lower part of body bruised by a fall of slate.
17	George Shuster,	Locust Gap,	do.	Head cut and ribs broken by a fall of coal.
30	Thomas West,	Big Mountain,	do.	Burned on face, neck, arms, and hands by CH gas.
Dec. 4	Nicholas Mncilid,	do.	Engin'r's helper	Scalded on face, neck, and arms by hot water and steam; one of breaker boilers burst.
15	John Sheboskii,	Hickory Ridge,	Miner,	Burned by an explosion of powder.
19	Horace Mayer,	Burnside,	Loader & driver,	Knee fractured by being crushed between loaded cars.
19	William Laughlin,	Enterprise,	Miner,	Burned on body, face, neck, arms, and hands by an explosion of a keg of powder.
17	Daniel Woland,	Short Mt. & Lyk's Val.,	do.	Slightly burned by CH gas in No. 4 Slope, east counter.
17	George Plappert,	do. do.	Laborer,	Slightly burned by CH gas in No. 4 Slope, east counter.
22	John Weiser,	Hickory Swamp,	Miner,	Shoulder injured by a fall of coal.
22	Francis Schwartz,	Short Mt. & Lyk's Val.,	do.	Lower part of body injured by a fall of slate.
23	Benjamin Griffiths,	Pennsylvania,	do.	Arm broken while running away from blast.
31	Bernard Leonard,	Big Mine Run,	Dirt bank driver,	Seriously injured by being run over by dirt dumper.

TABLE V.—*Showing the grand total of employés, horses, mules, engines, pumps, boilers, and powder employed, tons of coal mined and shipped, fatal and non-fatal accidents, &c., in the Sixth Anthracite Mine District, for the year ending December 31, 1885.*

NAME OF COUNTIES AND PARTS OF COUNTIES IN THE DISTRICT.	Total number of men employed.	Total number of boys employed.	Total number of horses and mules employed.	Total number of engines and pumps employed.	Total number of boilers employed.	Total number of kegs of powder consumed.	Total number of tons of coal produced.	Total number of tons of coal shipped.	Total number of fatal accidents.	Total number of non-fatal accidents.	*Total number of times air measurements were taken.
Northumberland county,	6,187	2,305	942	329	443	65,194	2,498,818.05	2,366,476.08	21	88	. . . . .
Schuylkill county,	1,064	604	215	49	102	5,089	534,361.10	509,097.19	9	13	. . . . .
Columbia county,	1,351	486	163	124	166	16,594	610,582.12	581,479.01	6	8	. . . . .
Dauphin county,	1,503	702	353	110	179	17,373	561,654.00	504,153.09	9	27	. . . . .
Totals,	10,105	4,097	1,673	603	890	104,250	4,205,420.17	3,961,206.17	45	136	. . . . .

*Air measurements are made once a week in almost all the collieries in my district when working, and reported to this office once a month, besides the measurements I make at times of my visit to colliery.

COMPARATIVE STATEMENT *of casualties, tonnage, and employés of the Sixth Anthracite Mining District of Pennsylvania, for years 1881, 1882, 1883, 1884, and 1885.*

YEARS.	Killed.	Injured.	Total.	Total number of employees.	Number of employees to each casualty.	Total number of tons of coal mined.	Number of tons of coal mined to each fatal casualty.	Number of tons of coal mined to each non-fatal casualty.	Ratio of tons of coal mined to each casualty.	Number of tons of coal mined to each employee.
1881, . . .	48	147	158	11,865	60.8	4,432,601.13	92,436.00	30,154.00	22,731.00	373.00
1882, . . .	44	182	195	12,973	57.4	4,588,799.04	104,290.00	25,213.00	20,304.00	353.00
1883, . . .	64	170	226	14,588	62.4	4,813,162.12	75,205.14	28,312.15	20,141.14	329.18
1884, . . .	56	174	234	15,568	67.3	4,535,051.13	80,983.01	26,063.10	19,717.12	291.06
1885, . . .	45	136	181	14,202	78.4	4,205,420.17	93,453.15	30,922.04	23,234.07	296.02
Total, .	257	809	994	69,196	326.3	22,575,035.19	446,368.10	140,665.09	106,128.13	1,643.06
Average,	51.28	81.80	199.80	13,839.20	65.26	4,515,007.4	89,273.14	28,133.2	21,225.14$\frac{3}{5}$	328.13$\frac{2}{5}$

SEVENTH DISTRICT.

OFFICE OF INSPECTOR OF MINES,
POTTSVILLE, PA., *March 2, 1886.*

To the Honorable J. SIMPSON AFRICA, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania:*

SIR: In accordance with article two, section three, of an act approved June 30, 1885, entitled "An act to provide for the health and safety of persons employed in and about anthracite coal mines of Pennsylvania, and for the preservation of property connected therewith," I have the honor of submitting herewith my eleventh annual report as inspector of coal mines.

The report consists of the usual complement of tables with other data, and general information which may be of practical interest to all.

I sincerely regret that it becomes my duty to report an increase in the loss of life during the past year over that of the preceding year, arising from the various causes incidental to mining operations in general. However, in looking at table No. 1, it is apparent that the increase in fatal casualties has resulted from falls of coal and roof rock and slate, from which source thirteen persons lost their lives this year, while only four were killed in this manner the preceding year. Four persons were crushed to death by mine cars; one man, slipping on the ice, was thrown down a slope and killed; another person fell from a breaker roof, sustaining injuries which caused his death; one was killed by being struck with a plank which a second party let slip from his hands, and two other persons lost their lives by explosions of gas. Hence, the total death-list is eight greater than in the previous year.

Nothwithstanding this large increase in the number of deaths, it will be observed that none of these fatal accidents resulted in the death of more than one person at the time of each occurrence, and that this district was not visited by any overwhelming mine calamity.

By examining table No. 2, it will also be seen that there is an increase of twenty-six (26) in the list of non-fatal accidents, of which number fifty per cent. was due to a single accident, viz: An explosion of gas, a detailed account of which is given elsewhere in the report. Another noticeable source which augmented the list arose from explosions of blasting material, by which nine persons were injured this year, while only two were thus hurt last year.

It is also in place to state here that the territory of the district was enlarged during the last year by the addition thereto of the Brookside col-

lieries, by which means the coal tonnage of the district was increased about two hundred and ninety thousand tons. These collieries added four victims to the death-list, equal to fifty per cent. of the increase over the preceding year of fatal casualties. By looking at table No. 4, it will be still further observed that the gross output of coal for this year exceeds that of the previous year by over half a million tons; also, that the number of employés are five hundred and eleven (511) greater than that of 1884.

SAMUEL GAY,
Inspector of Mines.

TABLE No. 1.—Fatal Accidents.

Comparative statement of fatal casualties which occurred during the years 1884 and 1885.

CAUSES OF ACCIDENTS.	YEARS.	
	1884.	1885.
Explosions of fire-damp,		2
Falls of coal and roof,	4	13
Crushed by mine cars,	4	4
By machinery on the surface,		1
By machinery underground.		
Falling down shafts.		
Falling down slopes,	1	1
Breaking of ropes or chains.		
Explosions of blasting material,	2	
Miscellaneous causes,	4	2
Total number of fatal accidents,	15	23

TABLE No. 2.

Number of fatal accidents, and amount of coal produced per life lost, by the different companies and individual firms, for the year 1885.

OPERATORS.	No. of fatal accidents.	Amount of coal produced per life lost.
Philadelphia and Reading Coal and Iron Company,	13	92,980
Lehigh Coal and Navigation Company,	4	124,348
Alliance Coal Company,	2	86,109
Individual firms,	4	104,088

TABLE No. 3.—Non-fatal Accidents.

Comparative statement of non-fatal casualties, which occurred during the years 1884 and 1885.

Causes of Accidents.	Years.	
	1884.	1885.
Explosions of fire-damp,	4	17
Falls of coal and roof,	26	21
By mine cars,	11	14
By machinery on the surface,		1
By machinery underground.		
Falling down shafts,		
Falling down slopes,		1
Breaking of ropes and chains,		1
Explosions of blasting material,	2	9
Miscellaneous,	18	15
Total number of non-fatal accidents,	61	79

TABLE No. 4.

Table showing amount of coal produced by different companies and individual firms, during the years 1884 and 1885, respectively.

	Years.	
	1884.	1885.
Amount of coal shipped,	1,679,662	2,164,815
Amount of coal sold or used at the collieries,	100,952	129,888
Total number of tons produced,	1,780,621	2,294,703

Increase, 514,082.

TABLE No. 5.

Statement showing general comparison between the years 1884 and 1885, respectively.

	Years.	
	1884.	1885.
Number of persons employed,	7,114	7,625
Number of tons of coal produced per life lost,	118,708	99,769.07
Ratio of employés per life lost,	$474\frac{4}{15}$	$331\frac{3}{36}$
Number of tons of coal produced per each person injured,	29,190	$29,059\frac{3}{79}$
Tons of coal mined per each employé,	250.06	$301\frac{3}{10}$
Ratio of employés per personal injury,	$114\frac{6}{62}$	$91\frac{27}{79}$

TABLE No. 6.

Showing number of employés, number of deaths, and ratio of same per every one thousand employés of the different companies and individual firms for 1885.

OPERATORS.	Number of employés.	Number of deaths.	Ratio of deaths per thousand employés.
Philadelphia and Reading Coal and Iron Company,	4,166	13	3.12
Schuylkill Coal and Navigation Company,	1,221	4	3.27
Alliance Coal Company,	855	2	2.26
Individual firms,	1,374	4	2.91

GENERAL CONDITION OF THE MINES.

In regard to the measures taken by the colliery officials for the preventing of accidents and loss of life, we may state that, without a doubt, their efforts to secure and keep the collieries in a safe condition have not been less during this year than in the year preceding, although there is a large increase in the list of accidents of 1885 over 1884; but this increase is due to accidents resulting from falls of coal and roof, a common danger surrounding the miner at all times. Whether the workmen were more reckless, or this danger greater than during the previous year, we are not prepared to say; however, we know that several of the victims recorded on this death-list, by a little common prudence and care on their own part, might have averted an accident. In fact, there are several sources of danger connected with mine operations as well as in many other branches of industry that the safety of the workmen, to a very great extent, depends on themselves. For instance, the constant danger of falls of coal or roof, also in handling of explosives, can be only guarded against by the constant care and judgment displayed by the workmen themselves.

Injunction.

For the protection of the lives of the employés in the Crystal colliery, operated by Joseph Brady & Co., and in our own defense, we were compelled to ask the court to restrain, by an injunction, said Joseph Brady & Co. from operating this colliery. The case was argued before His Honor, Judge Pershing, and, as is usually the case, most of the workmen employed at this mine appeared before the court and testified that the colliery was in a safe condition; but His Honor emphatically told the defendants that the injunction would be continued, and a master appointed to take testimony in the case.

The following is the master's report to the honorable court:

Crystal Colliery.

The report of Seth W. Geer, Esq., master in the case of Mine Inspector Gay *vs.* Joseph Brady, was filed in court. The master finds that the inspector was right in closing Crystal colliery, which the defendant was operating. In accordance with his recommendations, the injunction was dissolved on the following conditions: *First*, That the defendant furnish an adequate supply of pure air, as provided by the act of Assembly. *Second*, That the gangway on the "Mammoth" and "Four Foot" veins be driven eastwardly as far as it is proposed at present to take out coal, and that the pillars be removed only in robbing back from the eastern terminus. *Third*, That whenever the gangway on the Mammoth vein shall have advanced through a pillar of coal of more than thirty feet, said gangway shall not be further advanced until it is ascertained that there is no dangerous opening below said gangway. *Fourth*, That during the working a proper and safe second outlet shall be kept open through which persons may escape to the surface. *Fifth*, That the defendant pay the costs of these proceedings.

SUDDEN OUTBURST OF GAS AT THE OTTO COLLIERY SEPTEMBER 9, 1885.

Under this heading, arises one of those phenomena which, in our judgment, requires more than ordinary notice or insight, from the fact that its source is a concealed one, and when the gas bursts forth, it is generally with overwhelming violence, (for seldom are the ventilating currents found to be sufficient to cope with the dense volume of explosive mixture evolved,) making it one of the greatest dangers encountered by those engaged in mining. It is a well-known fact that hundreds of colliery employés are destroyed, annually, by this uncontrollable element. Notwithstanding this, however, we are of the opinion that many of these disastrous explosions have been charged to sudden outbursts of gas, when, in many instances, if the facts of the case could have been brought to light, the cause would have been found chargeable to the neglect or ignorance of those officials who were superintending the mining operations, the theory of sudden outburst having been advanced to conceal their ignorance or guilt.

But on the other hand, the public and the press are always ready to go to extremes in passing judgment, condemning the unfortunate mine official in charge of the place where the calamity occurred, and frequently without even waiting to ascertain whether the accident was really due to willful neglect, or whether it was wholly unavoidable and beyond human control, a class of mishaps to which sudden outbursts of gas belong.

Hence it is very important, before passing judgment on questions of such serious character, that the subject should be carefully investigated, and the responsibility placed where it justly belongs.

We are willing to confess that in the case of this accident at Otto colliery, what we have said in regard to public sentiment is applicable to ourselves, because, when the accident was reported to us by one of the colliery offi-

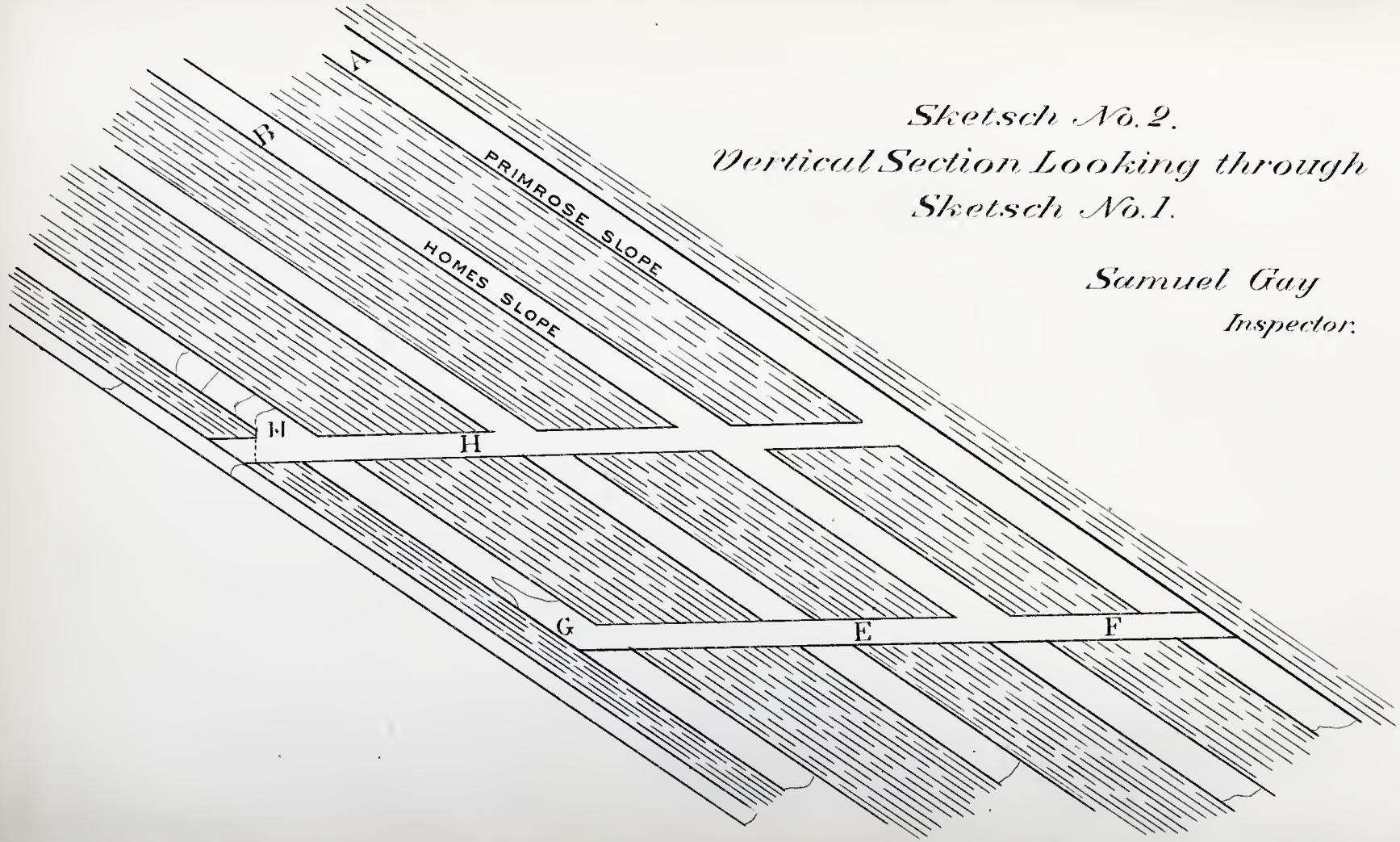
cials, who stated that it was the result of a sudden outburst of gas, we intimated our doubts to him, and at the same time told him that we believed many explosions were charged to sudden outbursts that were due to neglect or ignorance. However, after we had investigated the matter and found that over twenty-two (22) feet of the solid face of coal had been displaced, we were fully convinced that there had been a fearful outburst of gas over which human skill had no control; and we are pleased to admit that in this case our suspicion of neglect had not been correct.

The Otto colliery is one of the oldest and one of the most extensive in this region. The main openings consist of three slopes, but those to which we particularly desire to direct the attention of the reader are slopes marked A and B on sketch No. 1, sunk on the Holmes vein and Primrose vein, respectively, and connected at the different lifts by means of tunnels. Slope A is sunk down fifteen hundred feet, on an angle of 35° south dip; the last three hundred feet are sunk in the solid, and the same distance below the old workings on the Mammoth and Primrose veins. Three hundred feet of gangway west, from which point two tunnels (marked E and F on sketch) were driven, one cutting the Primrose vein and the other the Mammoth vein.

The work under way at the time of the outburst, which caused the accident, was the driving up of an air-way (G) in the Mammoth seam to be connected with the level above, thereby establishing a permanent air-course.

From the time of the commencement of this airway, considerable trouble was encountered from the large quantities of gas given off, quite sufficient at times to charge the ventilating column to an almost explosive point notwithstanding that the current circulating through the tunnel was about five thousand cubic feet per minute. The parties engaged in driving the airway were composed of two men—a miner and a laborer—on each shift. In order to better secure the safety of these men, as well as the mine workings, no open lights were used, and a special fire-boss was employed on the night shift, whose duties were confined to this one section of the mine.

In the morning, about one o'clock, the men noticed that the face of coal was working more than usual, and at the same time indications began to show themselves of some great force which was disturbing the solid coal. The miner, fearing that the face would rush out, sent the laborer down to the tunnel, (where the fire-boss was standing,) thinking as he afterward stated, that if a large volume of gas should suddenly be discharged while he was alone in the air-way, his chances to make his escape down to the tunnel would be much better. This conclusion was not reached a minute too soon, for the laborer had just gotten down into the tunnel by the side of the fire-boss, when both heard a rushing noise similar to escaping steam, and immediately thereafter they saw the miner tumbling down into the tunnel followed by a rush of coal and gas. The three men began to retreat toward the tunnel mouth, the fire-boss with his safety-lamp in hand,



Sketsch No. 2.
Vertical Section Looking through
Sketsch No. 1.

Samuel Gay
Inspector.

watching the progress of the volume of gas as they moved back, the air current having been reversed by the force of the body of gas when it rushed out. This condition of affairs continued thus until the tunnel filled with gas for a distance of two hundred and twenty-five feet back from the face, at which point the gas began to recede. According to the testimony of the men, it was about fifteen minutes from the time when the outburst occurred until the gas again receded to the face of the tunnel. Returning, the men found the air-way impassable from the loose coal carried down by the rush.

About twenty minutes after the occurrence, and while the men were discussing the event and the miner's escape, they were again startled by the shock of an explosion, but did not think it was the gas that had just passed away from them; but upon investigation, they found such to be the case, that one person had been killed and twelve more men injured, but fortunately none of the latter were seriously hurt, and but a small amount of damage done to the mine.

It is at this point of the subject that any doubt of the accident resulting from a sudden outburst of gas would be likely to arise, when taking into consideration the large volume of explosive mixture suddenly evolved, and compare it with the small amount of destruction caused by the explosion. If the whole body of gas had exploded, (which result would be very reasonable,) then the statement that a portion of it might have been fired without setting off the whole body would seem incredible, and it naturally raised doubts in our own mind previous to investigating the matter, but we found it to be a fact, that only a portion of the whole volume had exploded. We base our belief on the following facts: First, the quantity of gas given off was not less than fifty thousand cubic feet; hence, had such a volume exploded, the destruction to life and property would have been fearful. In fact, not a person in the mine would have escaped, and the cause of the accident would have been much more difficult to explain. Second, notwithstanding the large quantity of gas given off when the explosion took place, the damage done to the mine was comparatively small; in fact, its force and effect were confined to the point where it had been ignited. Therefore, we are of the opinion that the main body of the explosive mixture had passed off through the regular air-channel, (K K;) and we furthermore believe that the gas which exploded was the portion which filled that part of the gangway (I) between the head of the tunnel (H) and door (X,) a distance of about twenty-five (25) feet.

The fatal accident occurred in the following manner: The unfortunate men were working on the night shift, timbering the workings east of the door, (X.) The men had finished their work for the night, and were on their way to the foot of the slope. Instead of walking, the twelve men got into a car, and rode out with the driver, Linn, who stood on the car bumper to drive his mule. When they arrived at the door (X) he stopped the mule

and opened the door, when the gas pent up between the door and the tunnel (H) rushed through, and, being ignited by his naked light, instantly exploded, killing him, and burning all the men in the car, but none of them seriously. We believe that if the men had arrived at that door a few moments earlier, the whole body of gas would have been fired with more disastrous results; but if they had gotten there a few moments later, there would have been no explosion, because by that time a natural diffusion would have taken place, or the gas would have escaped and passed the door through leakages.

Let us again consider the probable quantity of gas evolved by this sudden outburst. We have said elsewhere, not less than fifty thousand cubic feet, but without doubt the quantity was much greater; however, we do not desire to convey the idea that we have sufficient data to fix a given quantity with any degree of certainty. Nevertheless, we have taken the following basis for our calculations, upon the testimony of the miner, laborer, and fire-boss, which, in our opinion, was verified by facts connected therewith. Under oath, these men stated that the gas filled the tunnel back from the face for a distance of two hundred and twenty-five feet, which length multiplied by the area, seventy-five feet, would equal sixteen thousand eight hundred and seventy-five cubic feet. But it must be borne in mind that, during this time, a greater quantity of gas was passing off in the same ratio as that of the ventilating current previous to the outburst; or, probably, we may arrive at a more correct conclusion by taking the velocity of the current, and multiplying by the time it took to fill up the tunnel until it receded; hence, if we take this as a basis, we have these results: Quantity of air in circulation, five thousand cubic feet per minute, and (according to the testimony of the men) the time it took to fill the tunnel, and recede fifteen minutes, the quantity would be seventy-five thousand cubic feet. To many this quantity will probably appear large, but it is quite evident, beyond doubt, that the volume of the explosive mixture, when it reached the fatal point, was much greater than the above given amount. Notwithstanding that this body had traveled fifteen hundred feet, and on its way met and intermingled with two other air-currents, which increased the total quantity of air circulating through the tunnel (H) to nearly twenty thousand cubic feet per minute, yet it is very evident that the whole volume must have been charged to an explosive point; had it not been so, there could have been no explosion.

Hence, it appears, first, that the gas was in a pure state, as it passed from tunnel (E) to the upper tunnel, (H,) and second, that it was only when it had met and intermingled with much larger volumes of air that it reached an explosive point. Therefore, we are inclined to believe that not less than two hundred thousand cubic feet of inflammable mixture passed through the upper tunnel, (H.)

IMPROVEMENTS MADE DURING THE YEAR.

Brookside Colliery.

On the twenty-fifth of last April, the breaker at the Brookside colliery was destroyed by fire, and in ninety-four days after its destruction, a new breaker was constructed sufficiently to allow the first shipment of coal to be made therefrom on that date.

The capacity of this new concern is greater, and its mechanical devices for the handling and preparing of coal more complete than any breaker yet built in the Schuylkill coal field.

In order to make this immense structure as durable and fire-proof as possible, iron has been very extensively used, the entire roof and sides of the building being covered with sheet-iron, while the bottoms of the coal-bins are laid with cast-iron plates, instead of the usual method of covering planks with sheet-iron. This is the first case in which iron has been so extensively used in breaker construction.

Notwithstanding the great amount of mechanical skill and labor necessarily required in the construction of the machinery in a structure of this kind, the Philadelphia and Reading Coal and Iron Company's foundries and machine shops in Pottsville, Pa., were equal to the emergency. This becomes cognizant when we remember in what remarkably short time this work was accomplished. Although the work was necessarily done in haste, yet we may venture to state, that the quality, material, and workmanship displayed in the building of this breaker, has not been equaled by any structure of the kind in the region.

We are indebted to S. B. Whiting, Esq., general manager of the Philadelphia and Reading Coal and Iron Company, of Pottsville, for the following figures, showing the amounts of the several materials used in the building of this breaker, viz:

White pine, yellow pine, and oak,	383,800 square feet.
Cast-iron,	589,300 pounds.
Wrought iron,	170,000 pounds.

Chamberlain Colliery.

Thompson, Hiatt & Co. A new slope has been sunk to a depth of three hundred feet, and a breaker and other general improvements erected, having a capacity varying from one hundred and fifty to two hundred tons of coal per day.

Newtown Colliery.

Diggles, Miesse & Co. A new breaker, which had been commenced in 1884, was completed early this year, but on account of some financial difficulty between the operators and employés, very little work has been done at this colliery.

Lehigh, No. 8, Colliery.

The most important undertaking in the way of improvements during this year, and one deserving special notice, is the new shaft sunk at this colliery by the Lehigh Coal and Navigation Company, the shaft and the connecting tunnel, air-ways, &c., driven during that time. The shaft is sunk to a depth of eight hundred and twenty-five feet, and the tunnel extends from the bottom of the underground trial slope to the foot of the shaft, and is five hundred and twenty feet long; this slope, however, is sunk three hundred feet below the present shaft level. Sketch No. 3, accompanying the report shows these various openings and their relation to each other, and also shows the method employed in opening up or developing and working this large body of coal in the Mammoth vein. Sketch No. 4, of the report, is a cross-section showing the main avenues for transportation of coal and for ventilating the mines, which, it will be noticed, are being driven on an underlying seam, viz: The Skidmore vein. From these avenues or gangways cross-cuts are being driven at regular intervals through the dividing measures, at an angle of 35°, to the bottom of the Mammoth vein, where the breasts on that vein will be opened.

The old adage, that "necessity is the mother of invention," is quite applicable to this case, because if it had not been for the difficulties and expense previously encountered in the working of this colliery, in maintaining the gangways and air-ways and keeping them in proper condition, the main openings in this new operation would have been driven on the Mammoth instead of the Skidmore vein. But by this new plan, the Skidmore vein will remain intact, with the exception of the main gangways and airways, and thus avoid the great amount of unnecessary expense which would have been met with in the old system of having the gangways and air-ways on the Mammoth vein while working that seam of coal.

Notwithstanding the remarkably short time in which this shaft was sunk, (it was finished in about fifteen months,) we do not hesitate in stating that there is not a more solid or a finer piece of work of its kind in the country. We may furthermore venture to say, that there has not been a piece of work of the same magnitude done, where such precautionary measures have been adopted for the preservation of life and limb of those employed, as at this colliery. We cannot produce any better evidence to show how strictly the laws were enforced than the fact that this eight hundred and twenty-five feet of shaft were sunk without one serious injury to any of the numerous employés, for which the officials of the company, particularly Mr. Evans and the men having charge of the sinking, deserve the highest commendation.

We are indebted to W. D. Zehner, general superintendent of the Lehigh Coal and Navigation Company for the accompanying plan, Nos. 3 and 4.

DESCRIPTIVE LIST OF FATAL ACCIDENTS.

Accidents Resulting from Explosions of Fire-Damp.

Accident No.—September 8. John Linn, a driver, aged eighteen years, was killed by an explosion of fire-damp at Otto colliery.

Accident No. 20.—December 20. Jacob G. Boyer, a fire-boss, aged twenty-nine years, was fatally burned by an explosion of fire damp at Kaska Williams' colliery.

At the time of the accident, the unfortunate man was making his usual morning examinations to see that the mine was in a safe condition before the colliery employés entered. It appears, that in all previous examinations but very little gas had been generated; in fact, Boyer stated just before his death, that before the explosion he had never found any gas in this place, so that we are fully convinced that on this occasion he entered the place with his open light, believing that the place did not generate explosive gas, and by his own recklessness lost his life.

Accidents Resulting from Falls of Coal and Roof.

Accident No. 1.—February 3. James Hubert, a driver, aged sixteen years, was instantly killed, at Lincoln colliery, by a piece of top rock falling on him while he was riding along the gangway on the hind end of a trip of loaded cars.

Accident No. 3.—February 21. Henry Smith, a miner, aged fifty years, was killed, at Palmer Vein colliery, by a piece of coal rolling off the side of a chute while he was going up to the face of the breast in which he worked, and crushing him to death.

Accident No. 4.—February 26. Charles Marker, a miner, died from injuries received, at New Lincoln colliery, by a sharp piece of slate falling on his leg and nearly severing it from his body.

Accident No. 9.—July 18. Henry Gottshall, a miner, aged fifty-five years, was killed at the face of his working place, in Otto Colliery, by a fall of top slate, resulting from insufficient propping.

Accident No. 11.—July 24. Isaac Franz, a miner, aged fifty-five years, was killed by a fall of slate at the face of a breast in which he was working at the Brookside colliery.

Accident No. 12.—August 24. Patrick Brackerty, a miner, aged sixty years, died from injuries received, at New Lincoln colliery, by a piece of slate falling upon his leg and nearly cutting it off.

Accident No. 13.—August 28. John McVeigh, a miner, aged thirty-five years, was killed at Thomaston colliery, by a piece of coal crushing him against a prop in a manway, as he was trying to pull it off the side.

Accident No. 14.—Charles Green, a miner, aged thirty-two years, was killed by a fall of coal and slate at West Brookside colliery.

This man was loading a car at the face of the gangway in which he worked, when a piece of the lower side of the gangway fell off and crushed him against the car, killing him instantly.

ACCIDENT No. 16.—September 9. David James, a miner, aged fifty-five years, was killed, at the Lehigh, No. 8, colliery, by a body of coal rolling on him from the face of a seam of coal from which the surface ground had been removed or stripped.

ACCIDENT No. 17.—October 7. Henry Reinoehl, a miner, died from injuries received, at New Lincoln colliery, by a piece of coal that fell on him from the high side and near the face of a gangway in which he worked.

ACCIDENT No. 18.—November 25. Joseph Patten, a miner, aged forty-five years, was killed by a fall of roof in his working-place at Phœnix Park, No. 3, colliery.

This accident, if it may be so called, was the result of pure recklessness. The top slate had been working for some time before the fall took place, and Patten and his assistant were down on the gangway listening to it. Notwithstanding this warning which the top slate was giving, Patten determined to go into the face of the breast to bring out some of his tools. He reached the face without any mishap, but when about to return to the gangway, the top slate fell upon him and crushed him underneath it.

ACCIDENT No. 21.—December 21. John O'Brien, a miner, aged twenty-years, was fatally injured by a fall of roof at the face of his breast in the Phœnix Park, No. 3, colliery.

ACCIDENT No. 22.—June 11. Isaac Morgan, a miner, aged forty-four years, was fatally injured, at West Brookside colliery, by a fall of slate and coal.

Accidents Caused by Mine Cars.

ACCIDENT No. 2.—February 5. George Keich, aged sixteen years, a driver at Lehigh, No. 10, colliery, was crushed to death at that place by a trip of loaded cars which he was bringing to the bottom of the slope.

From the testimony given at the investigation of this accident, it appears that a door-tender whose duty it was to tend also a switch located near the door where the accident occurred, failed on this occasion to place the switch in its proper position. The driver, coming out with his trip, saw that the switch was wrong, and attempted to change it, but in so doing he was caught by the cars and killed.

ACCIDENT No. 7.—April 20. Charles Christ, an outside laborer, was fatally injured, at the Old Lincoln colliery, by being crushed between two loaded cars, while attempting to uncouple them when in motion.

ACCIDENT No. 8.—June 23. David Thomas, a driver, aged eighteen years, died from injuries received at the Lehigh, No. 8, colliery, by being crushed between a car and a gangway prop.

ACCIDENT No. 19.—November 25. John F. Boyle, aged thirty-four years, a repairman at the Lehigh, No. 8, colliery, was squeezed to death between the gangway timbers and a car.

Accidents Caused by Machinery.

ACCIDENT No.—.February 6.—John A. Kreise, a slate-picker, aged four-

teen years, died from injuries received at West Brookside colliery breaker by being caught in the coal elevator.

Falling Down Slopes.

Accident No. —February 14. James Nolen, a repairman, aged fifty-five years, was fatally injured at Mine Hill Gap colliery by falling down the slope.

The deceased, in company with another man, was engaged in cutting the ice from the slope road, and although the angle of the slope varied from 40° to 50°, and the condition of the road very slippery and dangerous, yet these men took no extra precaution to secure their safety, which they might have done by placing a couple of planks across the slope, resting the ends on the slope timbers, and moving them alternately as they advanced in their work up the slope. They had cut the ice about forty yards up the slope, when suddenly Nolen slipped, and fell back down the slope, receiving injuries which caused his death.

Miscellaneous Accidents.

Accident No. —March 14. Benjamin Housekuichk, aged twenty-two years, a carpenter, working at the Eagle Hill colliery, died from injuries received while engaged in removing the roof from the colliery breaker.

He was carrying some of the timber off the roof, when he fell from the plankway and was fatally hurt.

Accident No. —July 29. William Parry, aged fifty-one years, a repairman, at New Lincoln colliery, was instantly killed by being struck with a plank.

This peculiar accident happened in the following manner: Parry and several other workmen were in the pump-way, making preparations for putting in a new pump column. Notwithstanding that the angle of the pump-way was 50°, the men divided into two separate bodies, one party working above the other. By some oversight, the uppermost party failed to make secure a plank which they had just taken off the pump-way, although they stated that they had spiked it temporarily to an adjoining prop. But the plank became loose, and was precipitated down the pump-way, and, striking Parry, who was working among the party below, killed him instantly.

RECAPITULATION.

Number of employés inside,	4,550
Number of employés outside,	3,075
Number of persons killed inside,	20
Number of persons killed outside,	3
Number of persons seriously injured inside,	68
Number of persons seriously injured outside,	12
Tons of coal shipped,	2,164,815
Estimated amount used at mines,	129,888

Number of steam-boilers in use,	615
Number of boiler explosions,	
Number of breakers in operation,	38
Number of surface slopes in use,	33
Number of shafts in use,	5
Number of underground slopes in use,	6
Number of water-level openings in use,	14
Number of kegs of powder used,	44, 380
Number of mine locomotives in use,	8

TABLE I.—*Showing location of collieries in the Seventh Anthracite Mine District.*

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Post-Office Address.
Beachwood,	Philadelphia and Reading Coal and Iron Co.,	Schuylkill,	S. B. Whiting,	Pottsville.
Brookside,	do do. do.	do.	do.	do.
Eagle,	do. do. do.	do.	do.	do.
East Franklin,	do. do. do.	do.	do.	do.
Eagle Hill,	do. do. do.	do.	do.	do.
Forestville,	do. do. do.	do.	do.	do.
Glendower,	do. do. do.	do.	do.	do.
Kalmia,	do. do. do.	do.	do.	do.
Lincoln, Old,	do. do. do.	do.	do.	do.
Lower Rausch Creek,	do. do. do.	do.	do.	do.
Middle Creek Shaft,	do. do. do.	do.	do.	do.
Otto,	do. do. do.	do.	do.	do.
Phœnix Park, No. 3,	do. do. do.	do.	do.	do.
Pottsville Shafts,	do. do. do.	do.	do.	do.
Pine Forest,	do. do. do.	do.	do.	do.
Richardson,	do. do. do.	do.	do.	do.
Swatara,	do. do. do.	do.	do.	do.
Thomaston,	do. do. do.	do.	do.	do.
Wadesville,	do. do. do.	do.	do.	do.
	Lehigh Coal and Navigation Company,	do.	W. D. Zehner,	Lansford, Carbon county.
Lehigh, No. 8,	do. do. do.	do.	do.	do. do.
Lehigh, No. 10,	do. do. do.	do.	do.	do. do.
Lehigh, No. 11,	do. do. do.	do.	do.	do. do.
Lehigh, No. 12,	do. do. do.	do.	do.	do. do.
Lehigh, No. 13,	Swartz & Oliver,	do.	Thomas Oliver,	Tamaqua.
Kaska Williams,	Alliance Coal Company,	do.	W. D. Zehner,	Lansford, Carbon county.
Palmer Vein,	do. do.	do.	do.	do. do.
Individual Operations.				
Middle Lehigh,	Middle Lehigh Coal Company,	do.	Morgan Price,	Mahanoy City.
New Lincoln,	Levi Miller & Co.,	do.	D. J. Lewis,	Tremont.
Herbine,	J. K. Sigfried,	do.	Matthew Beddow,	Minersville.
Ellsworth,	John R. Davis,	do.	John R. Davis,	Broad Mountain P. O., New Castle.
East Lehigh,	Mitchell & Shepp,	do.	Joseph Mitchell,	Tamaqua.
Monitor,	John Denning,	do.	William Dennings,	St. Clair.
Crystal,	Joseph Brady,	do.	Jacob Brady,	Broad Mountain P. O., New Castle.
Keichline,	P. O'Connor,	do.	Thomas O'Connor,	Heckscherville.
Pine Dale,	Slemmer & Co.,	do.	Mark Bowman,	Middleport.
Diamond,	John Lawrence,	do.	John Lawrence,	Minersville.
Peach Mountain,	Morgan Williams,	do.	Morgan Williams,	do.
Ebony,	Bowman & Co.,	do.	John Bowman,	St. Clair.
Newtown,	Miesse & Diggles,	do.	George Morgan,	New Town.
Chamberlain,	Thompson, Hyatt & Co.,	do.	Daniel Thompson,	St. Clair.
West Lehigh,	Dunkelberger & Co.,	do.	Peter Young,	Tamaqua.
Repplier,	John Quinn,	do	John Quinn,	St. Clair.
Hooker,	Thomas Wren & Co.,	do.	Thomas Wrenn,	do.

TABLE II.—*Showing character of coal production, number of employés, days employed, casualties, &c., in the Seventh Anthracite Mine District.*

COLLIERIES.	Operators.	Character of coal, anthracite or semi-anthracite, bituminous or semi-bituminous.	Drift, slope, or shaft.	Number of inside workmen.	Number of outside workmen.	Total employees.	Number of days worked inside.	Number of days worked outside.	Number of horses and mules.	PRODUCTION.		CASUALTIES.				
										Number of kegs of powder used.	Number of tons shipped.	Killed inside.	Killed outside.	Injured inside.	Injured outside.	Total killed and injured.
Beachwood,	Phila. and Reading C. & I. Co.,	Anthracite,	Slope,	45	39	84	85	85	6	450	13,856	. .	. .	3	1	4
Brookside, West,	do. do. do.	do.	Slope,	319	296	615	260	260	124	3,650	290,471	3	1	7	3	14
Eagle,	do. do. do.	do.	Slope,	79	56	135	232	232	15	625	45,904	. .	. .	4	. .	4
East Franklin,	do. do. do.	do.	Slope,	50	27	77	81	81	9	95	5,590					
Eagle Hill,	do. do. do.	do.	Shft & slope	311	201	512	220	220	40	1,790	142,026	. .	1	3	. .	4
Forestville,	do. do. do.	do.	Slope,	suspended.												
Glendower,	do. do. do.	do.	Slope,	208	121	329	145	145	33	1,325	45,671	. .	. .	2	. .	2
Kalmia,	do. do. do.	do.	Drift,	225	111	336	251	251	29	4,525	86,571	. .	. .	5	1	6
Lincoln, (old,)	do. do. do.	do.	Slope,	263	147	410	239	239	55	2,750	96,368	2	. .	1	. .	3
Mine Hill Gap,	do. do. do.	do.	Slope,	suspended.								1				1
Middle Creek Shaft,	do. do. do.	do.	Shaft,	174	98	272	241	241	27	850	70,406	. .	. .	2	. .	2
Otto,	do. do. do.	do.	Slope,	183	118	301	199	199	32	875	55,129	2	. .	15	. .	17
Phœnix, No. 2,	do. do. do.	do.	Slope,	suspended.												
Phœnix, No. 3,	do. do. do.	do.	Slope,	151	79	230	234	234	80	1,735	55,507	2	. .	3	. .	5
Pottsville Shafts,	do. do. do.	do.	Shaft,	suspended.												
Pine Forest,	do. do. do.	do.	Shaft,	suspended.												
Ransch Creek,	do. do. do.	do.	Slope,	suspended.												
Richardson,	do. do. do.	do.	Slope,	187	137	324	236	236	34	3,020	102,431	. .	. .	1	. .	1
Swatara,	do. do. do.	do.	Slope,	suspended.												
Thomaston,	do. do. do.	do.	Slope,	332	188	520	238	238	66	4,424	130,392	1	. .	2	. .	3
Wadesville,	do. do. do.	do.	Shaft,	. . . .	23	23	. . . .	. . . .	2							
Total P. & R. C. & I. Co.,				2,527	1,641	4,168	2,681	2,681	502	26,114	1,140,322	11	2	48	5	66
Lehigh, No. 8,	Lehigh Coal and Navigation Co.,	do.	Slope,	191	160	351	240	240	52	240	123,379	2	1	6	3	12
Lehigh, No. 10,	do. do. do.	do.	Slope,	186	163	349	236	236	52	126	148,876	1	. .	4	1	6
Lehigh, No. 11,	do. do. do.	do.	Slope,	177	165	342	245	245	44	1,260	110,428	. .	. .	3	2	5
Lehigh, No. 12,	do. do. do.	do.	Slope,	114	65	179	240	240	24	1,320	86,556					
Total Lehigh C. & N. Co.,				668	553	1,221	961	961	172	2,946	469,239	3	1	13	6	23

Kaska Williams,	Alliance Coal Company,	do.	Shaft,	299	181	480	214	214	24	2,465	108,201	1	..	4	..	5
Palmer Vein,	do. do.	do.	Slope,	219	156	375	156	156	26	1,650	54,269	1	..	3	1	5
Total Alliance Coal Co.,				518	337	855	370	370	50	4,115	162,470	2	..	7	1	10
Crystal,	Joseph Brady,	do.	Slope,	15	13	28	140	140	9	102	4,604					
Diamond,	John Lawrence,	do.	Drift,	7	7	14	277	277	2	76	3,000					
Ellsworth,	John R. Davis,	do.	Slope,	25	16	41	211	211	5	375	13,047					
East Lehigh,	Mitchell & Shepp,	do.	Drift,	12	15	27	227	227	4	140	4,270					
Ebony,	Bowman & Co.,	do.	Drift,													
Herbine,	J. K. Sigfried,	do.	Drift,	125	60	185	229	229	4	1,248	35,203					
Keichline,	P. O'Conner,	do.	Drift,	7	9	16	225	225	3	350	5,800					
Monitor,	John Denning,	do.	Slope,	19	9	28	190	190	2	265	4,599					
Middle Lehigh,	Mill Creek Coal Company,	do.	Slope,	289	159	448	182	182	51	3,904	126,054					
New Lincoln,	Levi Miller & Co.,	do.	Slope,	210	175	385	259	259	...	3,950	154,307	4	..	2	..	6
Newtown,	Miesse & Diggles,	do.	Drift,													
Pine Dale,	Slemmer & Co.,	do.	Slope,	39	24	63	200	200	...	300	9,175					
Peach Mountain,	Morgan Williams,	do.	Slope,	12	7	19	75	75	...	75	975					
Repplier,	John Quinn,	do.	Drift,	13	6	19	200	200	2	98	4,840					
West Lehigh,	Dunkleberger & Co.,	do.	Drift,	8	6	14	120	120	...	4	2,006	..	..	1	..	1
Lehigh, No. 13,	Swartz, Oliver & Co.,	do.	Drift,	32	22	54	199	199	8	245	20,235					
Hooker,	Wren & Lessig,	do.		24	16	40	162	162	6	73	4,669					
				837	544	1,381	2,896	2,896	96	11,205	392,784	4	..	3	..	7
Grand totals,				4,550	3,075	7,625	6,910	6,910	820	44,380	2,164,815	20	3	68	12	106
Estimated amount of coal	used at mines,			....	....	....	....	....	...	....	129,888					
Total output,				....	....	....	....	....	...	....	2,294,703					

TABLE III.—*Names of collieries in operation and coal mined in Pottsville Division of the Mining District of Schuylkill for the years 1881, 1882, 1883, 1884, and 1885.*

NAMES OF COLLIERIES.	Location of Collieries.	Oporators.	1881.	1882.	1883.	1884.	1885.
1. Beachwood,	Mt. Laffee,	Phila. and Reading Coal and Iron Co.,	30,706.17	31,925.09	4,397.07	195.00	13,856.19
2. Colket,	Donaldson,	do. do.	43,221.15	31,484.08	35,661.17	33,369.09	not working
3. East Franklin,	Upper Rausch Creek,	do. do.	19,179.07	25,051.19	13,058.02	93.00	5,590.13
4. Eagle Hill Shaft,	Eagle Hill,	do. do.	70,084.12	69,811.10	73,872.17	82,294.10	142,026.10
5. Eagle,	St. Clair,	do. do.	49,361.19	28,594.07	28,426.09	34,319.07	45,904.06
6. Forestville,	Forestville,	do. do.	.....	11,443.00	39,213.18	37,033.13	snsponded.
7. Glendower,	Glen Carbon,	do. do.	51,465.18	1,220.12	23,479.02	41,542.15	45,671.11
8. Kalmia,	Orwin,	do. do.	83,167.00	200,100.05	169,403.08	72,205.16	86,571.05
9. Lincoln,	Tremont township,	do. do.	146,899.17	165,678.07	176,673.17	69,155.05	96,368.03
10. Mine Hill Gap,	Minersville,	do. do.	48,902.09	51,540.09	66,988.16	68,596.08	snsponded.
11. Middle Creek Shaft,	Middle Creek,	do. do.	.....	4,872.00	43,967.16	58,856.03	70,406.03
12. Otto,	Branchdale,	do. do.	55,905.05	11,422.09	32,082.05	56,078.04	55,129.09
13. Phœnix Park, No. 2,	Phœnix Park,	do. do.	33,011.00	32,963.18	8,859.13	abandoned.	
14. Phœnix Park, No. 3,	do.	do. do.	22,163.01	30,676.03	38,031.12	37,642.08	55,507.01
15. Pottsville Shaft,	Pottsville,	do. do.	16,478.08	42,625.19	59,562.15	12,458.06	suspended.
16. Pine Forest,	St. Clair,	do. do.	41,549.12	32,468.02	60,023.10	31,090.06	suspended.
17. Ransch Creek,	Tremont township,	do. do.	85,382.03	62,682.17	74,503.12	3,754.06	susponded.
18. Richardson,	Glen Carbon,	do. do.	58,388.16	66,331.00	66,248.15	72,498.02	102,431.05
19. Swatara,	Swatara,	do. do.	53,124.04	41,725.05	3,141.05	not shipping	suspended.
20. Thomaston,	Heckscherville,	do. do.	82,975.19	70,784.06	93,340.02	100,229.00	130,392.06
21. Wadesville Shaft,	Wadesville,	do. do.	110,874.08	15,233.04	5,240.10	29,554.14	
22. Lehigh, No. 3,	Coal Dale,	Lehigh Coal and Navigation Company,	140,365.11	107,423.18	93,299.04	107,858.00	123,379.03
23. Lehigh, No. 10,	do.	do. do.	83,463.04	116,259.10	107,973.18	133,890.15	148,876.02
24. Lehigh, No. 11,	do.	do. do.	81,525.10	76,955.00	83,430.19	102,133.14	140,428.17
25. Lehigh, No. 12,	do.	do. do.	.....	.....	43,793.00	89,456.11	86,556.03
26. Lehigh, No. 13,	Tamaqua,	Swartz, Olivor & Jones,	.....	.....	12,847.00	33,817.00	20,235.14
27. Kaska William,	New Philadelphia,	Alliance Coal Mining Company,	.....	.....	19,519.00	52,300.07	108,201.07
28. Palmer Vein,	do.	do. do.	28,000.00	35,596.00	43,292.07	61,312.05	54,269.07
29. Middle Lehigh,	New Boston,	Mill Creek Coal Company,	153,924.11	146,422.01	135,429.13	100,600.08	126,054.12
30. New Lincoln,	Tremont township,	Levi Miller & Co.,	.....	.....	.....	49,080.11	154,307.05
31. Herbine,	Minersville,	J. K. Sigfried,	21,132.02	6,245.03	19,298.05	37,730.08	35,203.12
32. Ellsworth,	New Castle,	John R. Davis,	11,933.02	15,036.00	12,384.00	12,149.00	13,047.00
33. St. Clair, (now Hookor,)	St. Clair,	Atkinson & Lessig,	3,524.17	4,358.05	4,882.02	3,136.01	4,669.00
34. Sharp Mountain,	Pottsville,	Thomas Wren,	2,510.00	1,265.10	794.00	66.10	
35. Oak Hill,	Mt. Laffee,	do.	.....	320.10	3,319.01	6,725.18	
36. East Lehigh,	Tamaqua,	Mitchell & Shopp,	10,116.08	8,461.02	2,096.13	3,805.07	4,270.14
37. Greenwood,	do.	Andrew Raabe,	2,776.00	2,480.00	2,570.00	749.10	
38. Monitor,	Wadesville,	John H. Denning,	1,851.07	2,840.00	5,611.00	6,500.00	4,599.00
39. Jugular,	New Castle,	Jacob S. Hopner,	869.04	1,049.17	1,099.04	1,129.00	
40. Crystal,	do.	Joseph Brady,	.....	5,149.11	3,900.00	5,977.04	4,604.13
41. W. C. Big Diamond,	Wolf Creek,	James F. Donohne,	8,000.00	5,860.00	2,130.16	1,567.00	
42. Wood's,	Swatara,	C. Woods,	1,054.12	837.02	1,510.12	1,600.01	
43. Keichlein,	Heckscherville,	P. O'Connor,	.....	217.00	2,409.00	3,671.00	5,800.00
44. Cromdee,	Wadesvillo,	John Mullin & Co.,	.....	919.00	1,538.03	1,353.19	

45. Black Valley,	Minersville,	Edward Hoskins,	1,942.16	1,666.17	1,150.12	1,273.00	
46. Repplier,	New Castle,	John F. Quinn,	3,106.18	4,250.16	3,311.00	3,606.03	4,840.11
47. Lewis Tract,	Minersville,	Seth W. Geer,	207.18				
48. New Castle,	New Castle,	B. F. Palm & Son,	.....	659.00	928.00	360.00	
49. W. C. Diamond,	Minersville,	J. A. Lawrence,	556.18	1,842.18	1,579.14	2,941.00	3,000.00
50. Swatara, No. 2,	Pine Grove,	John D. Felty,	1,046.05	.....	1,237.00	1,426.02	
51. Peach Orchard,	St. Clair,	—— Evans,	1,862.07	261.00	1,998.13	1,517.04	
52. Peach Mountain,	Minersville,	William H. Harris,	.....	.....	.....	2,040.00	975.00
53. Ebony,	New Castle,	Bowman & Co.,	.....	.....	.....	5,077.04	
54. Newtown,	Newtown,	Miesse, Diggles & Co.,	.....	.....	.....	497.00	
55. Coal Hill,	Blythe township,	Holohan & Bro.,	.....	.....	.....	979.00	
56. West Lehigh,	Tamaqua,	Wood & Pearce,	16,500.00	12,000.00	7,698.17	abandoned.	
57. Chandler Tract,	Minersville,	Patrick Keenan,	100.00				
58. Chandler Tract,	do.	William Lloyd,	9.10				
59. Black Mine,	Llewellyn,	J. D. Curtz Crook,	16,357.04	5,628.00			
60. Tremont Lands,	Tremont,	Peter Laux,	131.05				
61. Furnace,	St. Clair,	John Wylam,	120.00	50.00	20.00		
62. Middleport,	Middleport,	Louis Lorenz,	6,600.00	1,827.17			
63. Mammoth,	New Castle,	Mahoney & Co.,	750.00				
64. Garfield,	.....	Tim Cockill,	252.04				
65. Keim & Repp,	.....	S. B. Myers,	165.00	.....	358.00		
66. Dundas, No. 7,	.....	Davis & Co.,	5,000.00	9.981.17	3,646.00	abandoned.	
67. North Dale,	.....	John B. Church,	.....	2,968.00			
68. Jonestown,	.....	T. F. Quinn,	.....	350.00			
69. Oakwood,	.....	John Botham & Co.,	.....	1,000.00			
70. Morning Star,	.....	Whyms & Morgan,	.....	560.00			
71. Black Heath,	.....	George Kantner,	.....	729.00	1,654.00		
72. Pinedale,	.....	W. H. Slemmer & Co.,	.....	.....	800.00	.....	9,175.00
73. Tamaqua,	.....	Draper & Wittich,	.....	.....	385.10		
74. Small operators,	.....	.....	.....	411.00	4,196.00	661.10	
75. West Brookside,	Tower City, Schuylkill county,	Phila. and Reading Coal and Iron Co.,		Transferred	from Shamo	kin Division	290,471.03
76. Allen,	Tamaqua,	Dunkelberger & Co.,	.....	.....	.....	.....	2,006.00
Total,	.....	.....	1,726,089.12	1,612,526.16	1,759,588.17	1,679,662.07	2,164,824.19
Sold or consumed at collieries,	.....	.....	103,566.14	96,753.16	95,799.00	100,959.06	129,878.01
Total production,	.....	.....	1,829,656.06	1,709,280.12	1,855,387.17	1,780,621.13	2,294,703.00

TABLE IV.—*List of Accidents occurring in the mines of the Seventh Anthracite District for the year ended December 31, 1885.*

Date of accident.	NAME OF PERSON KILLED OR FATALLY INJURED.	Age.	Married or single.	No. of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident in Brief.
Feb. 6	John A. Krusty,	14	...	...	Brookside,	Schuylkill,	.....	Killed; caught by elevators.
3	James Huppert,	16	...	...	Old Liucoln,	do.	Feb. 4	Killed by a fall of rock.
5	George Keich,	16	...	...	Lehigh, No. 10,	do.	6	Killed; crushed by miue cars.
14	James Nolana,	55	Yes,	...	Mine Hill Gap,	do.	15	Killed; fell down the slope.
21	Henry Smith,	55	Yes,	...	Palmer Vein,	do.	22	Killed by a fall of coal.
26	Charles Marker,	30	No,	...	New Liucolu,	do.	27	Died from injuries received by a fall of slate.
March 14	Benjamin Houseknichk,	22	No,	...	Eagle Bill,	do.	March 14	Died from injuries received by falling off breaker.
April 20	Charles Christ,	23	...	...	Old Lincoln,	do.	April 21	Died from injuries by being crushed between cars.
Juue 11	Isaac Morgau,	44	Yes,	6	Brookside,	do.	.....	Died from injuries caused by a fall of roof.
23	David Thomas,	18	...	...	Lehigh, No. 8,	do.	June 19	Died from injuries by being crushed by cars.
July 18	Henry Gottshall,	54	Yes,	6	Otto,	do.	July 19	Killed by a fall of roof.
24	Isaac Frauz,	50	Yes,	3	Brookside,	do.	25	Killed by a fall of roof.
29	William Parry,	51	Yes,	3	New Lincoln,	do.	30	Killed; struck by a plank that fell down slope.
Aug. 24	Patrick Brackerty,	60	Yes,	...	do.	do.	Aug. 25	Died from injuries caused by a fall of slate.
28	John McVeigh,	35	No,	...	Thomaston,	do.	29	Killed by a fall of coal.
Sept. 8	Charles Green,	32	No,	...	Brookside,	do.	Sept. 9	Killed by a fall of coal.
8	Johu Linn,	20	No,	...	Otto,	do.	10	Killed by au explosion of gas.
9	David James,	60	Yes,	...	Lehigh, No. 8,	do.	11	Killed by a fall of coal.
Oct. 7	Henry Reinoehl,	...	Yes,	...	New Liucoln,	do.	Oct. 8	Died from injuries caused by a fall of slate.
Nov. 25	Joseph Patteu,	45	Yes,	6	Phœnix Park, No. 3,	do.	Nov. 26	Killed by a fall of roof.
25	John O'Boyle,	34	Yes,	4	Lehigh, No. 8,	do.	27	Killed; crushed between car and gaugway timber.
Dec. 18	Jacob Boyer,	29	Yes,	2	Kaska Williams,	do.	Dec. 18	Died from the effect of beiug burnt by gas.
18	John O'Breen,	20	...	...	Phœnix Park, No. 3,	do.	.....	Died from injuries caused by a fall of slate.

TABLE IV—*Continued.*

Date of accident.	Name of Person Injured.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location--county.	Occupation.	Nature and Cause of Accident in Brief.
Jan. 3	William Murphy,				Phœnix Park, No. 3,	Schuylkill,	Miner,	Severely injured; premature explosion shot.
5	Morris Coll,				Foster's Tunnel,	do.	Laborer,	Back hurt by a rush of coal.
7	A Huugarian,				Palmer Vein,	do.	do.	Burnt by an explosion of gas.
15	Michael Dumchu,				Lehigh, No. 8,	do.	do.	Arm broke; fell down steps at breaker.
20	James Morgan,				New Lincoln,	do.	Miner,	Thigh broken by a fall of coal.
21	John Fern,				No. 8,	do.	Laborer,	Fingers mashed.
Feb. 2	Elias Minich,				Kalmia,	do.	do.	Back hurt; a collar fell on him.
2	David Otto,				do.	do.	Miner,	Leg broken; fall of coal.
Mar. 16	John Meizingey,				Palmer Vein,	do.		Legs broken; caused by breaking of a clevis.
4	Michael Brynier,				Lehigh, No. 10,	do.	Laborer,	Hand hurt by being struck by a hammer.
26	Samuel Knight,				Kalmia,	do.	Miner,	Back hurt; a gangway collar fell on him.
April 6	John Mease.				do.	do.	Driver,	Injured by being squeezed between dirt cars.
	Kit Wilding,				Lehigh, No. 11,	do.	Miner,	Leg broken, and otherwise crushed by fall of coal.
	William Hoffman,				Lehigh, No. 10,	da.	Laborer,	Foot crushed; slipped into monkey rolls.
May 8	Thomas Armstrong,				Palmer Vein,	do.	Miner,	Severely squeezed by a fall of roof.
12	Albert Ingrain,				Lehigh, No. 11,	do.	Slate-picker,	Arm broken; fell down breaker steps.
12	William Parsell,				Thomaston,	do.	Miner,	Face and hands burned by powder.
	Henry Parsell,				do.	do.	do.	do. do. do.
14	Henry Zowling,				Lehigh, No. 10,	do.	do.	Head and arm cut by a fall of coal.
18	William Moore,				Beachwood,	do.		Burnt by an explosion of gas.
18	John Shannon,				do.	do.		do. do.
18	John Donovan,				do.	do.	Laborer,	do. do.
22	John O'Brieu,				Eagle,	do.	Miner,	Two ribs fractured by a fall of coal.
23	Daniel McMichael,				Otto,	do.	do.	Back and head hurt; fall of slate.
June 3	Willliam Wilson,				do.	do.	do.	Arm broken; struck by a sledge.
3	Mat Doyle,				Phœnix Park,	do.	Laborer,	Head and body squeezed by a car.
5	Patrick Pender,				Kaska William,	do.	Miner,	Slightly injured by a fall of coal.
9	Thomas Davis,				Lehigh, No. 13,	do.	do.	Back hurt by a fall of a slate.
16	Thomas Holland,				Middle Creek Shaft,	do.	Laborer,	Leg broken; caught by a lump of slate.
17	Thomas Beadle,				Kaska William,	do.	Miner,	Severely injured; premature blast.
17	Alfred Trainer,				Eagle Hill,	do.	Laborer,	Squeezed between two cars.
22	John Huber,				Lincoln,	do.	do.	Leg broken by a car.
	Morgan Jones,				Lehigh, No. 8,	do.	do.	Severely injured; premature explosion of a blast.
July 15	Heury Schwalm,				Kalmia,	do.	Miner,	Head cut, and body bruised by a fall of coal.
18	Daniel Codrington,				Lehigh, No. 9,	do.	do.	Badly cut by a fall of slate.
21	William O'Neill,				Thomaston,	do.	Laborer,	Arm broken; struck by a piece of coal.
24	William Shadel,				Brookside,	do.		Severely injured by a fall of slate.

TABLE IV--*Continued.*

Date of accident.	NAME OF PERSON INJURED.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location--county.	Occupation.	Nature and Cause of Accident in Brief.
July 24	John Finley,	..	..	..	Lehigh, No. 11,	Schuylkill,	Laborer,	Burnt about the eyes by his lamp.
25	David S. Davis,	..	..	..	Lehigh, No. 8,	do.	do.	Wrist broken; struck by a hammer.
25	Peter O'Neill,	..	..	..	Lehigh, No. 10,	do.	Miner,	Ankle sprained; fall of coal.
25	George Getz,	..	..	..	Lehigh, No. 11,	do.	Driver,	Thigh squeezed by a car.
Aug. 6	Thomas Kennedy,	..	..	..	Richardson,	do.	Miner,	Shoulder-blade broken; fall of coal.
7	Edward Gleason,	..	..	..	Phœnix Park, No. 3,	do.	do.	Injured by falling down a manway.
8	Amos Schwaim,	..	..	..	Kalmia,	do.	Driver,	Collar-bone dislocated; bumped by cars.
14	James Conner,	..	..	..	Kaska William,	do.	Miner,	Slightly injured; fall of coal.
19	Thomas Moran,	..	..	..	do.	do.	Laborer,	Injured by being jammed between car and prop.
20	James Close,	..	..	..	Thomaston,	do.	Miner,	Leg broken by a fall of coal.
21	Thomas Jones,	..	..	..	Gleudower,	do.	do.	Head and body bruised; fell down a manway.
Sept. 1	John Evans,	..	..	..	Lehigh, No. 8,	do.	do.	Arm and hand severely injured by an explosion of dynamite, whilst charging a hoe.
7	Mike Doland,	..	..	..	Otto,	do.	Driver,	Wrist broken; caught between car and top.
	Ed. Hoskins,	..	..	..	Lehigh, No. 8,	do.	Miner,	Bruised about head and body; fell part way down slope.
	James Reilly,	..	..	..	Brookside;	do.	Driver,	Leg severely injured by being crushed by car.
	John Lundy,	..	..	..	Eagle Hill,	do.	.....	Head and body cut and bruised; coal flying from a shot.
8	James Larken,	..	..	..	Otto,	do.	Miner,	Burnt by an explosion of gas.
8	Robert Frew,	..	..	..	do.	do.	do.	do. do.
8	Alexander Frew,	..	..	..	do.	do.	do.	do. do.
8	John Frew,	..	..	..	do.	do.	do.	do. do.
8	James Graham,	..	..	..	do.	do.	.....	do. do.
8	James Willson,	..	..	..	do.	do.	.....	do. do.
8	Charles McCalla,	..	..	..	do.	do.	.....	do. do.
8	James Lynch,	..	..	..	do.	do.	.....	do. do.
8	Frank Reilly,	..	..	..	do.	do.	.....	do. do.
8	Barney McGovern,	..	..	..	do.	do.	.....	do. do.
8	Robert Lynn,	..	..	..	do.	do.	Miner,	do. do.
23	James Keely,	..	..	..	Glendower,	do.	Driver,	Back and hips squeezed between cars.
Oct. 9	Philip Lutz,	..	..	..	Kaska William,	do.	Miner,	Slightly burnt by an explosion of gas.
9	Jacob Keep,	..	..	..	do.	do.	do.	do. do.
12	William Cockron,	..	..	..	Eagle,	do.	do.	Severely injured by a fall of coal.
14	John Gammel,	..	..	..	Brookside,	do.	do.	Leg broken by a fall of coal.
19	John Bryant,	..	..	..	Lehigh, No. 8,	do.	Laborer,	Leg broken by clay falling on him.
28	John Moran,	..	..	..	Palmer Vein,	do.	.....	Slightly burnt by powder.

Nov.	7	James Sullivan,			Eagle Hill,	do.		Laborer,	Body bruised; caught by cars.
	12	Solomon Barr,			New Lincoln,	do.		do.	Caught between car and top of slope.
	18	August. Hellman,			Beechwood,	do.		do.	Back hurt; caught between car and gate.
	24	Alexander Snedding,			Lehigh, No. 11,	do.		Miner,	Leg and jaw broken by a fall of slate.
	30	Samuel Bone,			Lehigh, No. 10,	do.		do.	Leg severely bruised by a fall of coal.
Dec.	2	Thomas Moore,			Lehigh, No. 8,	do.		do.	Wrist broken whilst playing with boys.
	9	Daniel Rogers,			Lehigh, No. 11,	do.		Slate-picker,	Back hurt; fell off a dirt car.

Comparative Statement of casualties, tonnage, and employés for six years in the Seventh or Pottsville Division of Mining District of Schuylkill.

YEARS.	Killed.	Injured.	Total.	Total number of employés.	Number of employés to each casualty.	Total number of tons of coal mined.	Number of tons of coal mined to each fatal casualty.	Number of tons of coal mined to each non-fatal casualty.	Ratio of tons of coal mined to casualties.	Number of tons of coal produced per each employé.
1880,	15	129	144	6,913	$53\frac{1}{3}$	1,461,070	97,404	11,362	10,146	211
1881,	18	173	191	6,479	$34\frac{31}{191}$	1,829,656	101,647	10,516	9,579	281
1882,	20	91	111	6,632	$59\frac{83}{111}$	1,709,280	85,464	18,783	15,398	257
1883,	19	74	93	7,075	75	1,855,387	97,651	25,072	19,950	262
1884,	15	61	76	7,114	$93\frac{23}{38}$	1,780,621	118,708	29,190	24,745	250
1885,	23	79	102	7,616	$74\frac{68}{102}$	2,294,703	$99,769\frac{7}{100}$	29,059	22,479	301
Totals,	110	607	717	41,829	388	10,930,717	600,643	123,982	102,297	1,562
Averages,	$18\frac{2}{6}$	$101\frac{1}{6}$	$119\frac{3}{6}$	$6,974\frac{3}{6}$	$64\frac{4}{6}$	1,821,786	$100,107\frac{1}{6}$	$20,663\frac{4}{6}$	$17,049\frac{3}{6}$	$260\frac{33}{100}$

THE BITUMINOUS COAL REGION.

DEPARTMENT OF INTERNAL AFFAIRS,
BUREAU OF INDUSTRIAL STATISTICS, *May 1, 1886.*

Honorable J. SIMPSON AFRICA, *Secretary of Internal Affairs:*

SIR: For the purposes of investigation, at the time of the labor troubles, I visited South-western Pennsylvania, traveling from Greensburg to Pittsburgh, by way of Connellsville, Uniontown, Brownsville, and the Monongahela Valley. I conferred, as far as possible, with all classes of the community, with those engaged in general business as well as the employer and employé. I talked especially with the mine inspectors, and gladly testify as to their general intelligence, and hereby express my acknowledgments of their readiness to impart all the information in their power. The visit confirmed me in my belief that the statistics furnished this Bureau by the inspectors, operators, and employers are, in the main, correct and reliable. The importance of a full and accurate report as to the Bituminous coal and coke industry is recognized. Within comparatively a few years the Pennsylvania output, from insignificant beginnings, has rapidly increased, until during the year 1885, it has reached the enormous amount of twenty-five million tons, or a net product of coal and coke as reported by the operators of about twenty-two million tons. Nevertheless, when the vast area of Bituminous coal territory is taken into consideration in connection with the number and richness of the coal strata, the facilities for mining, the ready means for transportation, with a constantly increasing business demand, still the trade in these products may be considered in its infancy. The amount of wages paid during the past year amounted to $14,240,774, divided among forty-four thousand and six employés of all grades.

Reference to the published tabular statements, and the reports of the inspectors, will show the yearly increase and decrease of production, the number of persons employed, average time, wages paid, &c.

There was a falling off during the past year in the production of coke of about four hundred and fourteen thousand four hundred and sixty-eight tons. This resulted from a combination among the operators to restrict the production to the demands of trade, as well as by reason of the labor troubles which culminated in disastrous strikes in the Connellsville coke region.

Connellsville, as the leading point in the Coke production of Pennsylvania, has not been over estimated. The unfavorable criticism it has received by reason of the employment of women about the coke ovens is not alto-

gether unwarranted, although the facts have not been generally known. That women have been permitted to perform the severe manual labor generally apportioned to men is true. It is not true, so far as I could learn, that such labor was employed by the owners and superintendents of the coke ovens, but it is a fact that such employment was with their knowledge, and without their expressed disapproval. Men are employed and paid by the oven, and a number of the men so employed were Hungarians, whose sturdy wives, in their native land, were accustomed to out-door labor. Naturally to them, most unnaturally to the American view, they assisted their husbands in this country in preparing the ovens, and in drawing the coke therefrom. The work done, being piece work, the owner was disposed to be satisfied without inquiring too closely into the manner of its accomplishment. The coke owners did not directly hire the women, but must have been cognizant of the fact that they would assist those with whom they did directly contract. Knowing, too, that the labor was not new or unusual to the women, no doubt tended to reconcile the employers to their performing it. While the employment of women in the out-door manual labor usually perfomed by men, is contrary to the habits and customs of our people, and even though, as in the case referred to, the women themselves did not object, and were not actually injured, nevertheless such avocation for them must encounter a just prejudice. There is a feeling that the field of action for women in this country should be enlarged, and that the doorway to honorable professions and pursuits should not be closed against them for the sole reason of their womanhood, but the chivalrous sense of the nation revolts at their employment in rough out-door labor, however coarsely they may have been nurtured.

Practically, such employment places the native workingman at a disadvantage. Such competition would eventually compel our more delicately reared and refined women to follow the example of their more stalwart Hungarian sisters, or leave such field of labor to ignorant and degraded competitors. The last would inevitably be the result; the great body of our workingmen would endure great suffering and privation rather than permit their wives and daughters to enter into a competition so foreign to our general policy, and in opposition to the physical and mental training of women.

The exemption of women from out-door, coarse, manual labor is fully recognized for many reasons, and has been followed by the enactment of a general law by the Legislature forbidding their employment in and about collieries and coke ovens.

Closely relating to the hiring of women for unnatural work is the employment of boys in and about the mines and coke ovens. The labor to be performed by them is not so heavy, nor is such employment so contrary to our modes of thought and national customs. In truth, the refusal to permit such labor is frequently regarded as an infringement of personal lib-

erty of action. The selfish instinct of the hard-working, uneducated laborer is appealed to, and he regards as a great hardship a law which would prevent him from availing himself of the assistance that could be rendered by a sturdy, healthy boy. While the physical growth of the lad would not be impeded or even impaired by such employment, his mental culture would be entirely neglected. The employment of boys of tender years at protracted and continuous labor is against the genius and spirit of the age, which, in the universal establishment of public schools, demands the general education of the masses of the people. Therefore, the law of June 30, 1885, prohibiting the employment of boys under the age of fourteen years in or about mines, which include coke-ovens, has met with general approval.

At the time of my visit to Connellsville, December 2, 1885, the coke-ovens were in full operation, and, according to the best information attainable, fully ninety per cent. of them were lighted. No women were to be seen at work about the ovens, and I was reliably informed that the custom had fallen into disuse. I was also fully convinced that the law in relation to the employment of young boys was being observed.

I was unfavorably impressed with my visit through the coal region from Brownsville to Pittsburgh, which took me through that portion of the country on the Monongahela river at the time the strikes of the coal miners were in operation. It is possible that the existence of such strikes was so demoralizing in its effect as to cast a gloom on all the surroundings. The country is mountainous, and in the desolation of the depth of winter the rude homes of the miners looked cheerless and uncomfortable. There did not appear to be any gardens around the houses, and outside of towns and villages but little evidence was to be seen of advanced civilization in the manner of living. I could not help contrasting this region with other localities that I have visited. It may have been that the season of the year, in connection with the pending strike, created an impression that marred the face of nature, nevertheless squalor and poverty seemed to reign supreme. Whether this was the fault of employer or employed, or both, I am unable to say, but it is certainly to be hoped that a condition more favorable to the physical, intellectual, and christian development of the workingman may be brought about in the near future.

Pittsburgh is a great railroad center, and so impresses the visitor. One hundred and twenty passenger trains arrive and depart each day. Every twenty four hours, two thousand loaded freight cars enter and one thousand loaded freight cars depart from Pittsburgh and Allegheny. There are ten street railways, with a motive power of one thousand seven hundred horses and mules. In the year 1866, the street railways carried 6,230,000 passengers, while in 1885 the number carried was upward of 24,000,000. Not only is Pittsburgh a great railway center, but, situated at the point where the joining waters of the Allegheny and Monongahela

form the Ohio, its facilities for water transportation are very great. Four thousand three hundred and twenty-three vessels, with a tonnage capacity of 1,705,504 tons, and 3,500 persons are constantly employed. The capital invested is about $9,740.000, and the yearly value of the work of such transportation amounts to in the neighborhood of $2,600,000. The manufacturing industries of Pittsburgh and Allegheny give employment to about 102,000 persons, receiving wages amounting to $30,000,000 per annum. The capital invested is about $130,000,000, and the value of the yearly product $182,000,000.

Under such circumstances, the introduction of natural gas into Pittsburgh is of the greatest importance, and any predictions as to an ultimate revolution in manufactures and trade created by its use must appear visionary. While in Pittsburgh, I visited the works of the Elba Bolt and Nut Company and those of the Abel Smith Glass Manufacturing Company. In both of these establishments natural gas is used as a fuel instead of coal. Great satisfaction was expressed by those in charge of the furnaces with the heating power of the gas and the simplicity of the devices necessary to its proper introduction and use. A general introduction of this gas as a fuel in Pittsburgh, even with its present manufactories, will save a consumption of coal amounting to 3,000,000 tons per annum, and in connection with the saving of labor in the handling of coal and cinders in and about the mills and furnaces, will reduce the yearly cost of iron, glass, &c., over $5,000,000. Some conception of the future use of natural gas may be gathered from the fact that, even at this early stage of its use, it last year affected the bituminous coal output to the extent of 2,000,000 tons.

JOEL B. MCCAMANT,
Chief of Bureau.

BITUMINOUS COAL AND COKE.

Table of production of Bituminous coal and coke, average number of persons employed, annual wages paid, average number of coke-ovens idle and in operation, compiled from returns made to this Bureau by three hundred and sixty-seven operators, for the year ending December 31, 1885.

COUNTIES.	Number of mines in operation.	Number of days operated.	Average number of persons employed.	Amount paid in wages.	Number of tons of coal mined.	Number of tons of coke produced.	Number of ovens in operation.	Number of idle ovens.
*Allegheny,†	86	160	11,455	$3,271,819	3,588,244	19,416	95	107
Armstrong,	4	212	284	92,268	139,327	10,311	66	
*Beaver,	7	255	389	168,611	184,631	438	2	6
Bedford,	5	195	232	85,646	107,694	41,682	110	
Blair,	5	160	836	146,045	205,075	91,459	196	20
Bradford,	2	250	496	225,024	249,920			
*Butler,†	8	150	467	96,671	85,429	5,015	32	68
Cambria,	64	200	1,807	560,358	1,037,000	100,606	228	62
Cameron,†	1	100	101	13,019	7,706			
Centre,	9	200	611	185,831	373,504	6,127	40	25
Clarion,	9	212	626	204,195	299,216	7,057	58	12
Clearfield,	64	200	5,154	1,761,615	3,368,671	49,552	200	16
Elk,	7	220	958	421,181	537,826	3,438	36	
Fayette,	51	203	5,184	1,774,750	3,192,972	2,074,734	4,701	1,409
Greene,	3	250	33	4,502	8,248			
Huntingdon,†	8	235	543	236,620	247,424	62,838	241	
Indiana,	2	200	134	43,436	82,750			
Jefferson,	6	205	736	258,885	479,675	90,053	151	206
Lawrence,†	3	195	175	49,208	42,137			
McKean,†	3	200	121	46,238	44,312			
Mercer,	15	140	901	296,898	378,508			
Somerset,	15	193	400	118,073	302,715	5,382	32	
Tioga,	8	200	2,553	969,309	1,067,031	16,100	75	100
Venango,	1	280	16	6,851	7,000			
*Washington,†	33	195	3,064	833,917	836,633	900	4	
Westmoreland,	57	190	6,730	2,369,804	3,774,072	1,001,768	2,189	3,342
Total, 1885,	476	195	44,006	$14,240,774	20,647,720	3,588,876	8,456	5,373
Total, 1884,	361	213	38,906	14,752,786	18,084,941	4,003,344	10,942	
Increase,	115		5,100		2,562,779			
Decrease,		18		$512,012		414,468	2,486	

The number of days represents the time actually employed by the majority of employés. About one third of the employés averaged about one hundred and sixty days only. The annual wage fund, if divided share and share alike among all the employés, would give to each about $323 per annum, or about $27 per month. The highest average wages paid miners was $2 00 per day. The average wages paid miners was $1 70 per day. The highest average wages paid to common laborers was $1 60 per day. The average wages paid to same was $1 40 per day. Boys received about sixty cents per day.

The mine inspectors report a production of 22,409,337 tons for the fourteen months beginning November 1, 1884, and ending December 31, 1885. Counties marked † report lump coal principally. The total production of "run of mine coal" was about 25,000,000 tons.

The reports of operators show that the recent introduction of natural gas has decreased the coal production about 2,000,000 tons. The counties marked * were the counties most affected, though all the extreme western and south-western counties were affected to some extent.

LETTER OF TRANSMITTAL.

FIRST DISTRICT.

To the Honorable J. Simpson Africa, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania.*

Sir: I have the honor to present herewith my annual report for the First bituminous coal district of Pennsylvania, now composed of the counties of Greene and Washington, that part of Westmoreland county lying between the Monongahela and Youghiogheny rivers, and that part of Fayette county lying along and adjacent to the Monongahela river.

My commission, from His Excellency Robert E. Pattison, Governor of the Commonwealth of Pennsylvania, bears date of August 11, 1885, but I have given, as far as able, a report for the whole year.

There were a few mines I did not visit, owing to my time being taken up in attending to the examinations, as required by section fifteen of the act of June last.

Owing to the depressed condition of the coal trade, a great number of the mines in this district have not been worked very steadily, and to make matters worse, there was a disagreement between the operators and miners on the Monongahela river, in the shape of a strike, which was inaugurated in September, 1885, and declared off January, 1886. This reduced the output of coal materially for the year.

Statements of fatal and non-fatal accidents are herewith submitted, and the character of the accidents is given in detail. I am also able to show the number of persons employed in or about the mines; the estimated amount of coal produced; the improvements made during the year; the number of engines, boilers, and pumps used; the number of mines in the district, and a short description of the same.

There are sixty-eight mines in this district that come under the law when in operation. Of this number, nine have remained idle the entire year.

I would also say, in conclusion, that the additional duties devolving upon the bituminous mine inspectors under the so-called "check-weighman's act" of 1883 are so much foreign to and inconsistent with the regular duties of the office of mine inspector, that they should be placed under the jurisdic

tion of a separate officer appointed for that special purpose, and I hope this matter will receive due attention and consideration at the next session of our Legislature. Instances are already reported where serious loss of life and property was largely due to the inspector having to measure and brand pit-cars while the mines of his district needed his personal inspection. A considerable portion of the inspector's time is now occupied in holding examinations for mine-bosses and fire-bosses, as provided for in the act of 1885, besides the increase of other duties under the same act. Hence, I feel that it is necessary to the efficiency of the office to have the inspectors relieved of all duties that do not legitimately belong to that office under the "ventilation act" as now in force.

I have the honor to be,

Your obedient servant,

HENRY LOUTTIT.

MONONGAHELA CITY, *February 8, 1886.*

On August 21, I sent the following circular to the operators of the district :

MONONGAHELA CITY, PA., *August 21, 1885.*

To the Mine Operators of the First Bituminous Coal District :

DEAR SIR : I herewith call your attention to the fact that I have been appointed inspector of the First district, composed of the counties of Washington and Greene, and that part of Westmoreland county lying between the Monongahela and Youghiogheny rivers, and that part of Fayette county lying along and adjacent to the Monongahela river, and on my visit to your mine I trust I may find it in a satisfactory condition.

Yours respectfully,

HENRY LOUTTIT,

Bituminous Mine Inspector, First District.

On January 1, I sent blanks to all the operators in this district, of which the following is a copy :

ANNUAL REPORT

Of . . . mine, located at . . . , county of . . . , operated by . . . , to Henry Louttit, bituminous mine inspector for the First district of Pennsylvania, for the year ending December 31, 1885.

Name of superintendent,
Post-office address,
Name of mine-boss,
Post-office address,
Name of fire-boss,

Post-office address,
Number of mines owned by your company in this district,
Number of mines operated during the year,
Average number of persons employed inside,
Average number of persons employed outside,
Average number of mules and horses employed,
Average price paid for mining per ton or bushel,
Number of days worked during the year,
Total number of tons mined (of 2,000 pounds each) during the year,
Number of steam-pumps used for drainage,
Number of stationary engines used for hauling and hoisting coal,
Number of locomotives used in the mines,
Number of boilers used,
Number of coke ovens operated by your company during the year,
Number of coke ovens built during the year,
Improvements made by you during the year,

I inclose this blank for the purpose of obtaining the information necessary for my State report of the production of this district, the number of persons employed, &c. The information is required from you by section twenty of the bituminous mine law, approved June 30, 1885. It is necessary that this blank be returned to the undersigned before the 15th of January.

Henry Louttit,
Inspector.

The answer to these interrogatories will be found in this report, under their respective heads.

The following table shows the amount of coal produced, number of persons employed, and the number of lives lost in this district during the year; also, the ratio of said production to each person employed; also, to each life lost, and the number of persons employed to each life lost:

CAUSES OF ACCIDENTS.

Killed.

Fall of slate,	5
Run over by dilly trip,	1

Injured.

Fall of slate,	6
Fall of coal,	4
Fall of roof,	1
Struck in the eye by a wedge,	1
Premature discharge of a shot,	1

REMARKS.

Estimated coal production in tons, per year,	1,403,114
Number of persons employed,	4,214
Ratio of coal produced per person employed,	332

Number of lives lost during year,	6
Amount of coal produced per life lost,	233, 352
Number of persons employed per life lost,	702
Number of persons injured during year,	13
Amount of coal produced per person injured,	107, 931

IMPROVEMENTS.

The Alps Coal Company, located on the Monongahela river, has put in a new steam-pump and boiler; also, laid about fourteen hundred feet of five-inch suction pipe, three hundred and fifty feet discharge pipe, and twenty-two hundred feet of syphon pipe.

Campbell Brothers, of New Eagle mines, Monongahela river, have built a small tipple near their works to supply a local trade.

In Washington county, near Venetia, J. C. Carlin & Co. have sunk a new shaft five feet nine inches in diameter, and ninety-eight feet in depth; also, built one stable 32×16.

Messrs. Snowden & Hogg have built a new furnace at their Albany mines near Brownsville; also, erected an office, sunk a slope for a traveling way, and put in some cribbing below their tipple.

The Stony Hill Coal Company have built a new river tipple furnace, and opened a new pit-mouth; also, put in machinery for transporting the coal from the interior of the mines.

W. H. Brown Sons whose mine is situated near Monongahela City, Washington county, have made some very extensive improvements, consisting of a stationary engine of twenty-four horse-power; one boiler, twenty flues, six inches—boiler is twenty-four feet long by fifty-four inches in diameter; the drums are two in number, and five and one half feet in diameter; hauling rope used is thirty-nine hundred yards long, and five eighths of an inch in diameter—they haul their coal with this machinery from the interior of the mine, a distance of some twelve hundred yards, to the tipple. The company has also built five blocks of houses.

The Jumbo Coal and Coke Company have built some new houses—engine-house. Put in machinery to haul coal out of their mine at McDonald, Washington county.

Stoner & Co. have sunk an air-shaft and laid some eight hundred feet of railroad siding; also built three blocks of houses at their works near Cannonsburg, Washington county.

The Knob Coal Company have put up at their mines, near Brownsville, a repair and blacksmith-shop.

Sadler, King & King have commenced to sink a slope 33° pitch, 8×6, at their mines near Waynesburg, Greene county.

J. T. Jones has laid five hundred feet of syphon pipe in his mines near Webster, Westmoreland county.

At Coal Bluff, the Monongahela and Peters Creek Gas Coal Company have

put in an endless line to drop the coal down a grade of fifty feet for some twenty-eight hundred feet in length.

Washington Coal Company have built at their mines, near Lucyville, a ventilating furnace stack, a pumping boat used for pumping water out of their river craft, and replaced heavier iron for lighter on their trestle.

Harvey Hutchinson (Cliff mines) has graded his main entry, changed his machinery from pit-mouth to the shaft for the purpose of using tail rope.

MINES ON THE MONONGAHELA RIVER.

Knob.

These mines are situated about one half mile above West Brownsville. The coal is reached by a slope of 20° pitch, extending some sixty-three yards. It is owned and operated by the Knob Coal Company. They ventilate by a furnace placed at the bottom of a sixty-foot shaft, assisted by the exhaust steam from the pumps. At the time of my visit (October 5) these mines were in good condition, as regards ventilation and drainage. The air-current measured nineteen thousand three hundred and twenty cubic feet per minute. They employ sixty-five miners, seven drivers, seven mules, and one trapper inside. Capacity of mines, six thousand bushels per day. John Bakewell is mine-boss.

Umpire,

Situated one fourth of a mile above the mouth of Redstone creek, on the Fayette county side. Operated by C. L. Snowden & Co. Ventilated by natural means. They were only driving a couple of entries and cleaning up roads. A fall took place in the mine and cut off some of their workings. They intend to drive an entry out to daylight and erect a furnace to supply the mine with air. I visited this mine September 2.

Albany,

Operated by Snowden & Hogg. This is a new mine, with a slope opening, and at the time of my visit, September 2, they were driving one face and two butt entries. Worked on the double-entry system. They employ forty-two miners, two drivers, one trapper, and two day-men inside and four outside. William Sedden is mine boss.

Climax,

Owned by Jonathan Forsythe and worked under lease by the Climax Coal Company. Entrance to the mine is by means of a slope one hundred and fifty-five feet long, and at an angle of 17°. They raise the coal by a stationary engine and wire rope. Ventilated by a *boiler furnace* thirty-three inches in diameter and twenty-nine inches deep, placed at the bottom of a thirty-six-foot shaft; the exhaust steam from the pump assists the ventilation some. Worked on the double-entry system. The air-current at the inlet measurement, four thousand four hundred and twenty-seven cubic feet. Eighteen miners, two drivers, one trapper, and one day-man inside and three

outside are employed here. Visited this mine November 4. Samuel Pursglove is mine-boss.

Stony Hill,

Located in Fayette county, opposite the upper end of the town of California, and operated by the Stony Hill Coal Company. Ventilated by a furnace. At the time visited, August 21, the company was building a new river tipple and making very extensive improvements inside. Alexander Roberts is mine-boss.

Cedar Hill,

Located opposite the town of California. Cedar Hill Coal Company, operators. Ventilated by a fire-basket placed at the bottom of an eighty-foot shaft. Worked on the single-entry system. They employ forty-five miners, three drivers, one trapper, and one day-man inside and three outside. I measured the air-current, and found twelve thousand three hundred and ninety cubic feet passing out at the up-cast. Capacity of mine, five thousand bushels per day. Visited this mine October 6. Joseph Ostimier is mine-boss.

Miller's Hill,

Situated in Fayette county, opposite the town of California. This mine is worked by the Miller's Hill Coöperative Company. Ventilated by natural means. Amount of air traveling in at inlet, four thousand eight hundred and thirty cubic feet. Drainage fair. Visited this mine October 6. John Underwood is mine-boss.

Merchant,

Located in Fayette county, a short distance below Miller's Hill mine. David Bowden, operator. Ventilated by natural means. This mine does not come under the law, employing less than ten persons.

Greenfield,

Owned and operated by J. S Neel. Located in the village of Coal Centre. They are working in the front hill, which is nearly exhausted, but they are opening another mine across the run; this will be reached by a trestle some three hundred feet in length. They have a small furnace to ventilate with, but at the time of my visit, October 16, it was not fired up, and, in the absence of this, the ventilation was not very vigorous in some parts of the mine. The mine is fairly drained. Fifty miners, two drivers, one trapper, one day-man inside, and two men and a boy outside are employed here. James Householder is mine-boss.

Globe,

Owned and operated by the Globe Coal Company. They have one main entry and five cross-entries. Worked on the double and single-entry system. Ventilated by a furnace and shaft. When visited, October 16, mine

was not running, owing to the strike among the miners, and they were only working a few day-men in the pit laying road, &c. William Davis is mine-boss.

Eclipse,

Operated by J. S. Neel. I visited this mine August 28, and found it in very fair condition as regards the ventilation and drainage. Cubic feet of air passing out at outlet, twelve thousand eight hundred and four. There are employed here ninety miners, six drivers, four trappers, and one day-man inside and six outside. Samuel Kent is mine-boss.

Caledonia,

Owned by Samuel Thompson, and operated under lease by T. J. Woods. This mine is worked on the double-entry system. Ventilation is produced by a furnace and shaft. The shaft is seven feet in diameter and ninety feet in depth. The mines were not running at the time of my visit, October 7, but the mine was in splendid condition. Amount of air traveling, thirteen thousand nine hundred and fifty cubic feet. Mine-boss, George Collins.

Champion,

Owned by Samuel Thompson, and operated under a lease by Cunningham & Morgan. A fall took place in this mine, and closed up some of their workings, but they intend to open them up again by driving entries, but had not commenced at the time I was in that vicinity. One of the firm told me that they did not expect to do anything in the mine till the spring.

W. H. Gregg,

Located at Wood's Run. Owned by Samuel Thompson, and operated under a lease by W. H. Gregg. Worked on the double-entry system. They have one main heading, and a parallel air-course sixty feet from the main entry going; also six butt entries. The day I was there, October 7, there were only two men at work, digging fine coal in one of the entries. Ventilated by a furnace and shaft. When running full, they employ seventy miners, five drivers, one trapper, and one day-man inside. Ventilation and drainage fair. George Gastkill, mine-boss.

American,

Owned and operated by the Washington Coal Company. Located a short distance above Lucyville. It is worked on the double-entry system. The main entry is driven N. 13½ E. Ventilated by furnace and shaft. Volume of air going out at furnace measured ten thousand and eighteen cubic feet. The rooms are started off the butt entries nine feet wide and driven in twenty feet, and then widened out to twenty-four feet. They are troubled with water some in entries 9 and 10, and the main heading. Ventilation fair. Capacity of mine, eight thousand bushels per day. Visited this mine October 8. Mine-boss, Thomas Donaldson.

Snow Hill,

Located in Fayette county, opposite the village of Lucyville. Owned by Elliott, Miller & Hough, and operated, under a lease, by the Alps Coal Company. In operating their main entry, they encountered some old workings, which extended some three hundred feet, and which necessitated the use of heavy timbering to battle successfully against the squeeze. A steam-pump of the Snyder & Wilson pattern is used for drainage. The company have leased the mine next to them, known as the Bargeddie mine, and intend to bring the coal of both mines over one tipple. Ventilated by furnace and exhaust steam. The coal at the pit-mouth is thirty-seven feet above low water. At my visit, October 8, they were tapping the Bargeddie mine of water. This (Snow Hill) mine is in good condition as regards ventilation and drainage. Eighty-five miners, five drivers, one trapper, and one inside man and five outside are employed. Capacity of mine, seventy-five hundred bushels per day. I found ten thousand five hundred cubic feet of air traveling out of up-cast shaft. Samuel Smith is mine-boss.

Excelsior,

Operated by E. C. Furlong. Ventilated by furnace. They are troubled a great deal with water, and the air-currents are not satisfactory, not being properly distributed. They employ, inside, thirty-five miners, three drivers, and one day-man, and four men outside. Visited this mine August 27. John Furlong is mine-boss.

Hall's,

Owned and operated by John Hall. The double-entry system is in use here. Ventilated by a fire-basket and exhaust steam from a pump. Mine water is somewhat troublesome. William Smith is mine-boss.

Carondelet,

Located one mile above Fayette City. Operated by the Carondelet Coal Company, (Limited.) Ventilation is produced by furnace power. Is worked on the double-entry system. The front hill, between the river and Little Redstone creek, is worked out—they have two openings across the creek where they are mining now. When I visited them, October 26, they were working what is known as the new hill, and I found it in fair condition. The air-current measured four thousand two hundred and fifty-two cubic feet at outlet. James Rea, inside boss.

Little Redstone,

Owned and operated by James Rutterford. It is a small drift mine, with no mechanical means for ventilation. Drainage fair. Visited this mine October 26.

Connecticut,

Owned by James Mehaffey & Co. This mine has not been in operation since 1872.

Clipper,

Owned and operated by the Clipper Coal Company. The coal here is ninety-one feet above low water. Worked on the double-entry system. They drive their main heading eight feet wide and the butt headings seven and one half feet. The company have some eighteen houses of their own for the use of their employés. I found, on my visit, October 17, the mines in fair condition generally. Capacity of mine, eight thousand bushels per day. Ventilation produced by furnace power. Robert Jack is mine boss.

Stockdale,

Is located near Lucyville. This is a new mine, and on my visit, August 27, their entries were only in a short distance. The owners (Stockdale Coal Company) intend to ship coal by rail when opened.

Tremont,

Owned and operated by John A. Wood & Son. This mine is worked on the double-entry system. Ventilation produced by furnace. Their main heading is driven in one thousand three hundred and eighty yards from pit-mouth. The coal is hauled by mule power to the check-house, and then tipped into tram wagons and run down an incline two hundred and twenty-five feet in length to a sliding tipple at the river and dumped into boats. At the time visited, October 28, the mine was not running. With a moderate fire in the furnace, the air-current was found to be moving at the rate of fourteen thousand two hundred and sixty-five cubic feet per minute. Capacity of mine, seven thousand bushels per day.

Little Pittsburgh,

Belongs to the estate of George Clark, and operated by John A. Beven, for R. E. Schmertz & Co. When visited, October 28, they were only employing eight persons, consequently did not come under the law. John A. Beven is mine-boss.

Rostraver,

Is situated in Westmoreland county, opposite the upper end of Lockland. Entrance to the mine is by drift. The coal is some two hundred and thirty feet above low water. Horsebacks in the roof are very troublesome here. Mine is ventilated by furnace. On my visit, November 5, I found the drainage fair, but the ventilation was somewhat defective. John Harris is mine-boss.

Iron City,

Owned and operated by Phillips & Mittenzwyre. This mine has not been operated for some two years, owing to the tipple being carried away by ice.

Columbia,

Operated by J. T. Jones. Worked on the block system. Ventilated by furnace power. Capacity of mine, four thousand bushels per day.

Webster,

Located at the south end of Webster, and owned by J. & W. C. Guffey. When visited, on October 22, they were building a new river tipple. There is about a mile of outside track that has a grade of three feet to the hundred for the first eighteen hundred, and then it varies from that to the pit-mouth. The full cars will be dropped down to the tipple by a stationary engine, wire rope, and the force of gravity, and the empty ones returned by means of the same engine and line. The stationary engine is placed near the pit-mouth. The coal is one hundred and fifty feet above low water here. Thomas Cowell is mine-boss.

Gilmore,

Located in North Webster, and owned by the heirs of John Gilmore. At the time I was in the vicinity of these mines, the heirs were negotiating with some parties with a view of leasing the mines for a term of years. I have since learned that the parties have come to an agreement, and the mines are now operated by a coöperative company, called the North Webster Coal Company. Ventilation is produced by furnace power. The mine is worked on the single-entry system. George Thomas is mine-boss.

Stockdale,

Located at Baird Station, on the Monongahela division of the Pennsylvania railroad. The coal here is worked on the single-entry system, and ventilated by furnace power. The pit cars are hauled by mules from the working faces to the check-house, and from that point they pass down a gravity plane to the tipple, where the coal is tipped into boats and shipped to market. John Crombie is mine-boss.

Abe Hays'

Is a drift opening owned and operated by S. B. Hays. The air-currents are produced by furnace power. The mine is worked on the double-entry system. They employ forty-one miners, four drivers, two trappers, and four day-men. Ventilation and drainage are well provided for. Visited this mine October 29. W. J. Mollison is mine-boss.

Black Diamond,

Owned and operated by W. H. Brown Sons. The main entry and air-course are driven parallel with thirty feet of solid coal. Worked on the double and single systems. The rooms are turned off the butt entries six and one half feet wide, driven in twenty-one feet, and then widened out to twenty-seven feet, and when driven seventy-five yards, they are up (as known in mining parlance) their distance. The coal is hauled by a stationary engine and wire rope from a point on the main entry (a distance of some twelve hundred yards) to the tipple. Ventilation is produced by a furnace. Volume of air passing over the furnace, fourteen thousand five hundred and eighty cubic feet per minute. Visited this mine August 24. John Dodds, mining-boss.

Ivil,

Owned and operated by James Jones. It is a drift mine. The coal is hauled from the interior of the mine to a double parting by mules, and thence from there to the tipple by a stationary engine and wire rope. This mine is worked on the single-entry system, and ventilated by a fire-basket and shaft; they also have a pump and boiler located near the bottom of this shaft; the steam exhausting from the pump and the smoke from the boiler furnace is thrown up the shaft, and this has a tendency to help the ventilating current. I visited this mine September 5, and found the main entry dangerous in some places by loose rock overhead; this I ordered to be taken down and the places made safe. Volume of air circulating, twenty-one thousand four hundred and sixty-two cubic feet. Air was very weak at the face of workings.

Catsburg,

This mine is also located in First ward, Monongahela City. System of working single entry. Operated by Louis Staib, and ventilated by a fire-basket. The coal is hauled by mules from the working faces to a double parting located in the interior of the mine, and from here to the tipple by a stationary engine and wire rope. They employ one hundred and thirty persons inside and ten outside. Peter Doney, mine-boss.

New Eagle.

Examined September 29. Is located just outside of Monongahela City, and operated by Campbell Bros. Mine ventilated by furnace, and worked on the double-entry system. Drainage is somewhat defective. There was no fire in the furnace, and the air-current measured twenty-six hundred cubic feet. Daniel Campbell is mine-boss.

Courtney,

Operated by the Courtney Coal Company, at Courtney Station. Was examined September 4 and found in fair condition. Air measured at furnace, nine thousand five hundred and fifty-five cubic feet, which was fairly distributed to the face of the workings. They employ sixty miners, four drivers, one trapper, and four day-men. William Louttit is mine-boss.

Garfield.

This is a drift opening, and has been in operation for six years. This mine is worked on the double-entry system, and ventilated by furnace power. The main entry and air-course are driven parallel to each other, on a bearing of S. 13° W., with forty feet of solid coal between them. Their main entry and air-course cross a swamp some fourteen feet in depth, and seven hundred and ten feet in length. They blasted the roof down across the swamp in the main entry, thereby leveling up the hauling road. Mine is drained by a Blake steam-pump. At date of visit, October 14, the mine

was not running. The quantity of air measured was eight thousand one hundred and ninety cubic feet. Capacity of mine, eight thousand bushels per day. Mine operated by J. S. Neel. Henry Reitz is mine-boss.

Buffalo,

Situated on the west side of the river. It is a drift opening, and operated on the double-entry system. Ventilation is produced by a six-foot Murphy fan working as a force, and at the time of my visit, August 31, was forcing thirteen thousand nine hundred and six cubic feet of air per minute into the mine. Some of the butt entries of this mine are troubled somewhat with soot veins, which give off water, necessitating the use of a steam-pump for drainage. The coal is hauled from the working faces by mule power to a double parting, and from thence to the tipple by a stationary engine and wire rope. In cleaning up an entry that had fallen in some three hundred yards, fire-damp made its appearance in one end of the fall, and at the time of my second visit, September 3, I gave orders to use safety-lamps while working at the fall in this entry. One hundred and thirty miners, six drivers, two trappers, and twelve day-men are employed, and the out-put amounts to nine thousand bushels of lump coal per day. Alexander Parks is mine-boss.

Cincinnati

Is situated on the west side of the river, and immediately below the Buffalo mine. This is also a drift opening and worked on the double-entry system. Ventilation by a fire-basket and steam exhaust from a pump. The air-currents are split into two divisions, one going up the main entry, and the other up the air-course. The former split supplies entries 6, 9, and 10, and the latter 1, 2, and 5. At date of visit, September 1, they were employing one hundred and ten miners, eight drivers, one trapper, and eight day-hands. Daily out-put, eight thousand bushels. James Kerr is mine-boss.

Coal Bluff,

Located at Coal Bluff. Owned and operated by the Monongahela and Peters' Creek Gas Coal Company. The mine is worked on the double-entry system, and ventilated by furnace power. The fresh air to supply the hill entries enters the drift openings near the tippie, while the air that is needed for the west (so-called) entry is brought down a shaft located on No. 2 butt. The coal mined on these entries is transported by mule power from the working faces direct to the tipple, while the coal produced on the hill entries is brought by mule power to a station located near the mouth of No. 13 entry, and from here dropped down by an endless rope a distance of twenty-eight hundred feet (having a fall of fifty feet in that distance) to another station, and from this to the outside by mule power. They employ one hundred and thirty miners, eight drivers, three trappers, ten day-

men outside, and three inside. Amount of air circulating was eighteen thousand nine hundred and forty-three cubic feet per minute. Capacity of mine, eight thousand bushels per day. Visited this mine September 3. Elijah Dainty, mine-boss.

Cliff,

Situated on the west side of the river. Operated by Harvey Hutchinson. It is laid out on the double-entry system, and ventilated by a furnace and exhaust steam from their stationary engine, which is located in the mines. At my first visit, (October 3,) the mines were not running, but they had a few men making repairs inside. They employ one hundred miners, six drivers, two trappers, and eight day-men. Volume of air passing out, twenty thousand two hundred and twenty five cubic feet per minute. The mines have a capacity of eight thousand bushels per day. Robert Greenhalgh is mine-boss.

Banner,

Located at Shire Oaks. Owned and operated by J. M. Risher, and ventilated by furnace power. The mine is operated on the double-entry system. This mine is well drained, and a fair current of air going around the face of the work. When I visited this mine, October 2, I found it in very good order. When running full they employ two hundred miners, seven drivers, and eleven day-men. They ship coal both by river and rail. R. B. Drum, inside boss.

Hilldale,

Located on the west side of the river. Operated by the Hilldale Coal Company, D. H. Lynch, superintendent. This mine is worked on the single-heading system. The mode of ventilating is by furnace. The cross-headings are one hundred and fifty yards apart, with rooms turned on them right and left. On my visit to the mine, October 2, they were not running, owing to the strike among the miners. Capacity of the mine when working, eight thousand bushels per day. Mine-boss, George Hayes.

Peacock.

This is a new drift opening owned by Jonah Crothers, but is not far enough advanced as yet for a general description.

MINES OF THE P., C. & ST. LOUIS RAILROAD.

Hanlin,

Is situated near Hanlin station, and owned by the Hanlin Coal Company. These mines have not been worked for some time. S. S. Davidson is mine-boss.

Midway Block Coal.

These mines are situated at Midway, and operated by the Midway Block Coal Company. These mines consist of two drift openings, one on the north

and the other on the south side of the valley. The coal is brought by mule power from the working faces of each drift to the bottom of the shaft, some fifty feet in depth, and hoisted, tipped into cars, and shipped east and west. I visited this mine September 23, and found it in pretty fair condition as regards ventilation and drainage. They employ seventy-five miners, seven drivers, seven mules, two trappers, two day-men inside, and seven men outside. Superintendent, R. M. Ulp. Mine-boss, Thomas Stark.

Primrose

Is located about three fourths of a mile below Midway. Operated by T. B. Robbins & Co. They employ eighty miners, seven day-men inside, and eight outside. Ventilation is produced by exhaust steam from the pumps, and is assisted by the boiler furnace placed at the bottom of a one-hundred-foot shaft. The mine is worked on the single-entry system, with one hundred and twenty-five yards between entries. The rooms are started off the entry every eleven yards, driven in six yards, and widened out to seven yards, with road on the side. The coal is hauled by mule power from the pit-mouth, and from thence by stationary engine and wire rope to the tipple. At the time of my visit, September 24, the mine was in fair condition generally. Mine-boss, William Noble.

Jumbo,

Operated by the Jumbo Coal and Coke Company. This is a drift mine, and worked on the double and single-entry systems. Ventilated by a twelve-foot Crawford and Crimson fan, and at the time of my visit, September 9, was working as an exhaust, and running fifty revolutions per minute, producing thirty-one thousand five hundred and fifty cubic feet of air per minute at the outlet, but the air-current was not properly distributed, owing to the absence of stoppings and doors in some places. I suggested that they should be put in, which the mine-boss promised to do. I have since learned that my suggestions were carried out, and the air is now up to the face of the workings. They use the mining machines here, operated by compressed air-power, which appear to do the work well. They employ one hundred and seventy-five miners, seven drivers, one trapper, and thirteen day-men. David Brown is mine-boss.

Briar Hill

Is a drift opening, and located at McDonald Station. Patterson & Sauters, operators. The coal is worked on the single-entry system. Ventilation is produced by a furnace placed at the bottom of a shaft thirty feet deep. At the time of my visit, September 8, they employed seventy-five miners, six drivers, nine persons inside, and five outside. The air-current measured eight thousand five hundred and sixty-two cubic feet at the outlet, and seven thousand seven hundred and thirty-four cubic feet at the inlet. Joseph Fielding is mine-boss.

Walnut Hill Mines,

Located at Midway Station. These mines have not been in operation for some years.

MINES ON THE CHARTIERS VALLEY RAILROAD.

Allison Mines.

These mines are operated by Hon. Jonathan Allison. Worked on the single-entry system, and ventilated by natural means. Employ thirty miners, four boys, four drivers, and six day-men. They drive their entries one hundred and fifty yards apart, and turn rooms on each side of entry; these rooms are started on the entry six feet wide and driven in nine feet, and then widened out to twenty-one feet with the road on the side; the room is considered finished when worked up seventy-five yards. At the time of my visit, September 22, they had trouble with one of their entries making water. They ship part of the product of the mine to the coal-yard at Washington and some of it west. There were four thousand and twenty-five cubic feet of air passing in at the inlet, and five thousand two hundred and eighty cubic feet passing out at the outlet. George Uhler is mine-boss.

Stoner.

This is a drift opening, and operated by Stoner & Co. Ventilation is produced by natural forces. They employ forty-five miners, three drivers, and eleven day-men. The ventilation at the time of my visit, September 22, was deficient, but they were driving an entry to meet a shaft that they were sinking; this would make the air-current better. They are troubled somewhat with water in some of their entries. Henry Nicholson is mine-boss.

Cook's,

Operated by J. V. H. Cook to supply a local trade. Worked on the single-entry system, and ventilated by natural means. Visited this mine September 22. J. V. H. Cook is mine-boss.

Enterprise,

Owned and operated by V. Harding. Worked on the single-entry system, and ventilated by exhaust steam. Henry Naylor is mine-boss.

MINES ON THE P., McK. AND Y. RAILROAD.

West Newton Shaft,

Owned and operated by the West Newton Coal Company. Located on the west side of the Youghiogheny river; the company also has a shaft sunk on the east side of the river, and a tunnel is driven under the bed connecting the two shafts. The mines are worked on the double-entry system. They have two face entries and six butt entries. Ventilation is produced by furnace power. The underground workings of this mine lay partly in the First district and partly in the Second. I visited, September 12, this mine in conjunction with Inspector Jenkins. They employ seventy-five miners, five drivers, three trappers, and two day-men inside and six day-men outside. The product of this mine is transported over the B. and O. and the P., McK. and Y. railroads. John Smith is mine-boss.

Port Royal Shaft,

Is located at Port Royal Station, some four miles above West Newton. Operated by the Port Royal Coal Company. The coal is reached by a shaft one hundred and eighty-six feet in depth. The shaft is connected with another one on the east side of the river, operated by the same company, by means of a tunnel in the coal under the river bed. Worked on the double-entry system. This mine, at the time of my visit, September 11, was generating fire-damp pretty freely, but it is well watched. The fire-boss goes around in the morning through the places, and no one is allowed to go into the mines till he reports all safe. Ventilated by steam exhaust. They employ fifty miners, two drivers, and two trappers. Measured eight thousand four hundred cubic feet of air at outlet, and seven thousand and twenty cubic feet at inlet. John Redfern is mine-boss.

MINES ON THE PENNSYLVANIA AND WESTERN DIVISION OF THE BALTIMORE AND OHIO RAILROAD.

Venetia,

Operated by D. M. Anderson. Worked on the double-entry system. This mine at my visit, September 15, was in a splendid condition as to ventilation and drainage. Thomas Robb is mine-boss.

Eclipse,

Is operated by John Carlin & Co. This is a new mine, and was only employing a few men when I visited it, which was on September 15. Ventilation is produced by natural means. John C. Carlin is mine-boss.

Nottingham.

This mine is situated a short distance below the Eclipse. The coal is reached here by a drift, and operated by the Nottingham Coal Company.

Legler, No. 1.

Is owned by Jacob Legler, and operated under a lease by Henry Florsheim. Worked on the single-entry system. Ventilation is produced by a small furnace. At the time of my visit, September 14, was in good working condition. They employ sixty miners, four drivers, and six day-men. Charles Stein is mine-boss.

Legler, No. 2,

Is a new drift opening, and located about four hundred yards from mine, No. 1.

Gastonville,

Operated by the P. and C. Gas Coal Company. This is a drift opening, and ventilated by natural forces. Thirty miners, one driver, and four day-men are employed. Mine-boss, G. T. Burns.

GREENE COUNTY MINES.

Waynesburg Shaft,

Operated by Sadler, King & King. I did not visit this mine, as they were employing less than ten persons.

Sliding Rock Mine

Is a drift opening, and operated by J. W. Wilson. I did not visit this mine, employing less than ten persons.

DESCRIPTION OF FATAL ACCIDENTS.

John Harden, employed in J. V. H. Cook's mine, Cannonsburg, Washington county, was fatally injured by falling slate, March 28, and died the same day. Mr. Harden had worked in the coal mine some ten years; he leaves a wife and five children to mourn his loss.

John Ashworth, aged thirty-nine years, employed in Tomer & McKinley mines, Washington county, was instantly killed by a fall of slate April 13.

Peter Arentz, employed in Caledonia mines, Washington county, was killed by a fall of slate July 24. Deceased left his own working face to visit a neighbor's place, and while there his neighbor was knocking out slate posts. Arentz thought to help, and took the axe from his friend and commenced to take out the slate posts, and while doing so, the slate fell on him, with the above result.

William McCulloch was killed instantly in No. 2 entry, Stony Hill mines, by falling slate August 5. Inquest held, and a verdict of accidental death rendered.

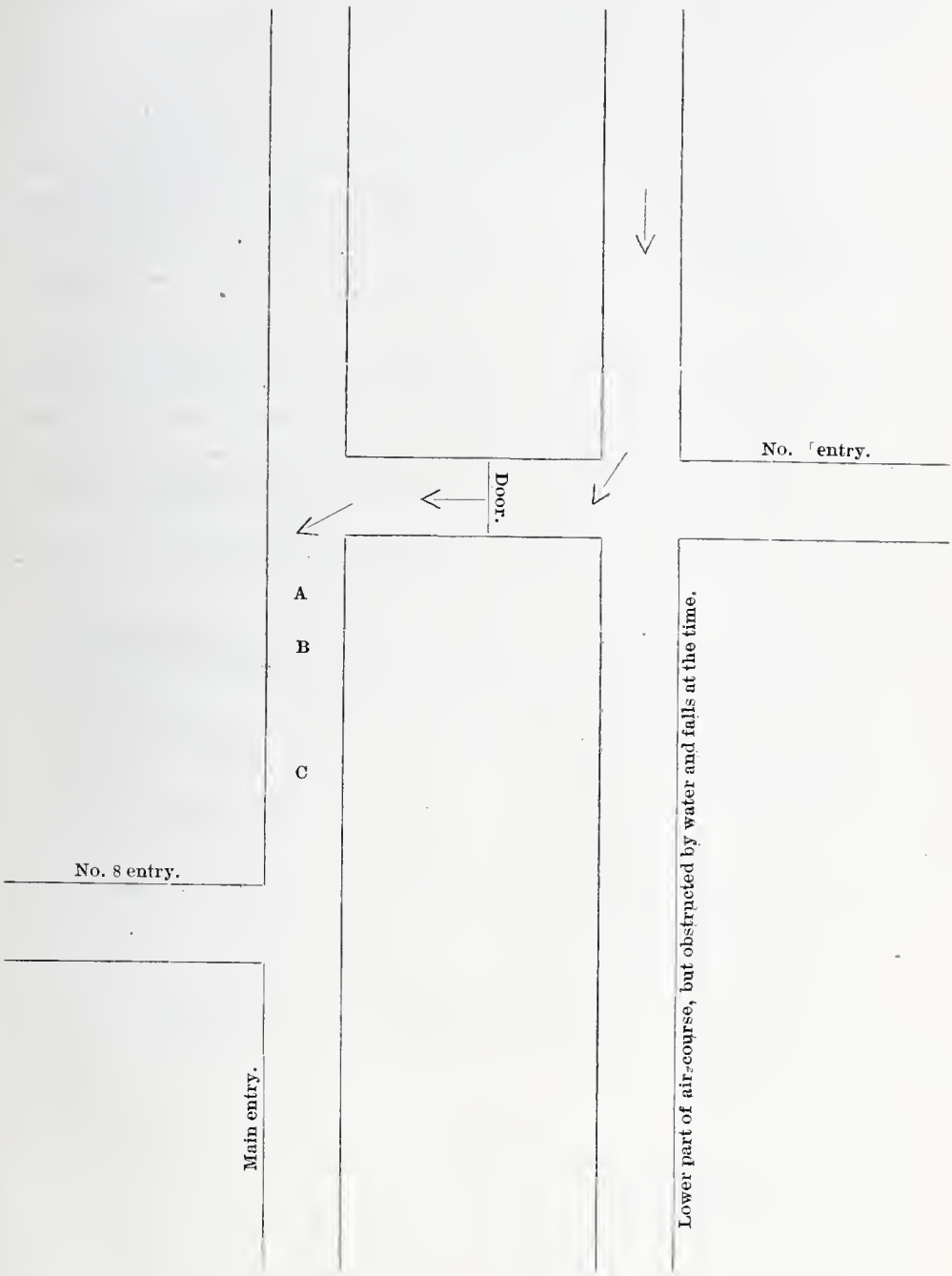
Michael Moony, a married man, was fatally injured in the Jumbo mine, operated by the Jumbo Coal and Coke Company. He was a miner, and had knocked out a post from under some slate that he had up, and it is supposed that the deceased went under the overhanging slate to get a pick that he had left, when the slate fell on him; he lived only a short time after being hurt. A copy of the inquest is herewith sent.

October 9, at Ivil mine, Robert Greenwood, a boy aged fifteen, was fatally injured by being run over by the dilly engine trip; he only lived some five hours after the accident. It appears that Robert, his brother William, aged seventeen, and their father quit work about three o'clock, and proceeded towards the pit-mouth. On the way out, the father stopped to talk to some of the officials of the mine about some work that he was doing, the boys passing on out the air-course, across No. 9 entry, at the mouth of which they struck the main entry, the usual mode of egress, and along which the dilly trips are drawn. When the boys came to this point they thought the trip had gone out ahead of them, and proceeded out on the main track, the elder boy in front and the younger one in the rear. They had not proceeded very many feet when the elder boy said, "the trip is coming,"

and jumped to the left and saved himself, but the cars struck the younger one, crushing him so badly about the legs that amputation was necessary, but he had lost so much blood that he did not rally after the operation. I examined the place where the above accident occurred, and found that there was plenty of room on the left-hand side going out for a person to pass the trip, but on the right it was insufficient.

As there was considerable feeling shown about this case, it was considered necessary to hold an inquest, which was done, and the following verdict rendered: "That the said Robert Greenwood came to his death on Friday, the 9th of October, 1885, in Jones' (Ivil) mines, in the First ward of Monongahela City, Washington county, by having been run over by a train of coal cars. Whether the owner or operator of said coal mine was, or was not, under the law, in any way responsible for the death of the said Robert Greenwood, is unknown to us. We, therefore, render a verdict of accidental death." Signed by the acting coroner and jury.

The following is a sketch of that portion of Ivil (Jones') mines where Robert Greenwood was fatally injured by being run over by the dilly trip October 9, 1885.



NOTE.—The arrows denote the route the boys traveled.
A, that part where the boy was supposed to be struck by the cars.
B, where boy's lamp and cap were found.
C, where boy was found under the cars.

DESCRIPTION OF NON-FATAL ACCIDENTS.

LOUIS EADER, a married man, was seriously injured in Cliff mines by falling slate on May 6.

JAMES GRIER, July 24, injured by falling slate in Buffalo mines.

August 19, a married man named HENRY MEYERS, had one of his legs so badly crushed in Catsburg mines by falling slate and coal that it had to be amputated. At the time of the accident, Meyers was bearing in on a butt end in room No. 9, entry 10. I investigated this accident, and found the room where this man got hurt very dangerous, owing to a squeeze that was working on the face of the coal. The piece of slate that fell on him, with the coal, was five feet long, twenty-one inches wide, and twelve inches thick.

GOTLEIB BOTZER, September 24, was severely hurt in Cook's mine. He was engaged in blasting some roof, when a shot went off before he got out of the way, the tamping striking him on the leg, making an ugly wound, and the flash burning him about the arms, face, and breast.

SAMUEL ELMER, November 5, injured slightly by falling coal in Carondolet mines.

FREDERICK DRYER, slightly injured by falling slate in Carondolet mines, November 11.

AUGUST SHULTZ, November 16, hurt by falling slate in American mine.

CHRIST. DRYER, aged twenty-six, married, hurt slightly about head by falling coal in Carondolet mines.

ALEXANDER GRAY, December 8, hurt on the small of the back by falling coal in Buffalo mine.

EDWARD BUNTON, December 16, seriously hurt by falling coal in Buffalo mine.

JAMES PROCTER, leg broken by falling coal at the Buffalo mine on December 24.

JAMES CHAPMAN, December 30, hurt slightly by falling roof in Wood's Run mine.

CHRIST. HOWELLS, injured in Port Royal mines by being struck in the eye by a wedge, December ——.

[COPY.]

COMMONWEALTH OF PENNSYLVANIA, } *ss:*
Washington county, }

An inquisition indented and taken at California, in the county of Washington, the fifth day of August, A. D. 1885, before me, I. T. Dawson, justice of the peace of the county aforesaid, upon the view of the body of William McCulloch, then and there lying dead, upon the oaths of H. C. Shaffer, William Beven, J. W. Moffat, Arch. Serena, George T. Bowers, and J. P. Lopp, good and lawful men of the county aforesaid, who, being sworn inquire, on the part of the Commonwealth, when, where, and in what man-

ner the said William McCulloch came to his death, do say upon their oaths, that William McCulloch, of California, Washington county, Pennsylvania, came to his death by a fall of slate at the head of No. 2 entry in Stony Hill coal mines, through and by neglect of the said William McCulloch to properly post up his slate. The jury exonerate the company or firm from any blame.

In witness whereof, as well the aforesaid justice as jurors aforesaid, have to this inquisition put their hands and seals on the day and year, and at the place first above-mentioned.

I. T. Dawson, [seal.]
Justice of the Peace.

H. C. Shaffer,	[Seal.]	Wm. Beven,	[Seal.]
George T. Bowers,	[Seal.]	J. P. Lopp,	[Seal.]
Arch. Serena,	[Seal.]	J. W. Moffat,	[Seal.]

[Copy.]

Commonwealth of Pennsylvania, } *ss:*
Washington county, }

An inquisition indented and taken at the house of Michael Moony, in Cecil township, Washington county, the 5th day of October, A. D. 1885, before me, Amos Love, a justice of the peace in and for said county, upon the view of the body of Michael Moony, then and there lying dead, upon the oaths of James Miller, Allen Gilmore, Thomas D. Thomas, G. H. Dremer, J. M. Stilly, and Isaac Parkinson, good and lawful men of the county aforesaid, who, being sworn to inquire, on the part of the Commonwealth, when, where, how, and after what manner the said Michael Moony came to his death, do say, upon a full investigation of all the circumstances and evidence, it is their unanimous verdict that the said decedent came to his death accidentally, through his own carelessness, in the mine known as Jumbo, in the aforesaid township, on the afternoon of October 5, 1885.

In witness whereof, as well the aforesaid justice as jurors aforesaid, have to this inquisition put their hands and seals on the day and year, and at the place first above-mentioned.

Amos Love, [seal.]
Justice of the Peace.

James Miller, *Foreman*,	[Seal.]	G. H. Dremer,	[Seal.]
Allen Gilmore,	[Seal.]	J. M. Stilly,	[Seal.]
Thomas D. Thomas,	[Seal.]	Isaac Parkinson,	[Seal.]

TABLE I.—*Showing location of collieries in the First Bituminous Mine District.*

NAME OF COLLIERY.	Name of Operator.	Location—County.	Name of Superintendent.	Post-Office Address.
Albany,	Snowden & Hogg,	Fayette,	Frank E. Hogg,	Brownsville.
Allison's,	Jonathan Allison,	Washiugton,	Jonathan Allison,	Washington.
Abe Hays,	S. B. Hays,	do.	T. S. Hntchinson,	Monongahela City.
American,	Washington Coal Company,	do.	Thomas Briggs,	Roscoe P. O.
Black Hawk,	Black Hawk Coal Company,	do.	John Smith,	Fredericktown.
Banner, Nos. 1 and 2,	J. M. Risher,	do.	John M. Risher,	Shire Oaks.
Buffalo,	J. J. Steitler,	do.	John McGonagle,	Courtney.
Black Diamond,	W. H. Brown Sons.	do.	John Dodds,	Monongahela City.
Brier Hill,	Patterson & Sauters,	do.	J. D. Sauters,	McDonald.
Cedar Hill,	Cedar Hill Coal Company,	Fayette,	L. W. Morgan,	California, Washington county.
Conuecticut,	James McHaffey & Co.,	do.		
Cincinnati,	J. S. Neel,	Washington,	Milo G. Gibson,	Courtney P. O.
Caledouia,	T. J. Woods,	do.	T. J. Woods,	Woods' Run P. O.
Courtney,	Courtney Coal Company,	do.	W. A. Kennedy,	Courtney P. O.
Cliff,	H. Hutchinson,	do.	Robert Greenhalgh,	Shire Oaks.
Clipper,	Clipper Coal Company,	do.	Robert Jack,	Allenport.
Catsburg,	Louis Staib,	do.	Adam Keil,	Monongahela City.
Cook's,	J. V. H. Cook,	do.	J. V. H. Cook,	Cannonsburg.
Champion,	Morgan & Dixon,	do.	L. W. Morgan,	California.
Coal Bluff,	Monongahela and P. C. Gas Coal Company,	do.	Thomas Watkins,	Coal Bluff.
Caroudelet,	Carondelet Coal Company,	Fayette,	Harry Mansfield,	Fayette City.
Climax,	Climax Coal Company,	do.	John Leonard,	Brownsville.
Colnmbia,	J. T. Joues,	Westmoreland,	J. T. Jones,	Webster P. O.
Eclipse,	John Carlin & Co.,	Washington,	John C. Carlin,	Venetia P. O.
Eclipse,	J. S. Neel,	do.	P. J. Forsythe,	Coal Centre.
Enterprise,	V. Harding,	do.	V. Harding,	Washington.
Garfield,	J. S. Neel,	do.	Milo G. Gibson,	Courtney P. O.
Greenfield,	do.	do.	P. J. Forsythe,	Coal Centre.
Gastonville,	P. & C. Gas Coal Company,	do.	James Devlin,	Gastonville.
Gilmore,	North Webster Coal Company,	Westmoreland,	John McCahill,	Webster P. O.
Globe,	Globe Coal Company,	Washington,	Robert Gregg,	Coal Centre.
Hilldale,	Hilldale Coal Company,	do.	D. H. Lynch,	Shire Oaks.
Hanliu,	Hanlin Coal Company,	do.	S. S. Davidson,	Hanlin.
Hall,	John Hall & Son,	Fayette,	John Hall,	Fayette City.
Ivil,	James Jones,	Washington,	James Jones,	Monongahela City.
Iron City,	Phillip & Mittenzwere,	Westmoreland,	Solomon Storope,	Webster P. O.
Jumbo,	Jumbo Coal and Coke Company,	Washiugton,	T. B. Robbins,	Midway P. O.
Knob,	Knob Coal Company,	do.	S. H. Pearsoll,	Brownsville.
Little Redstone,	James Rutherford,	Fayette,	James Rutherford,	Fayette City.
Little Pittsburgh,	Schmerz & Co.,	do.	John A. Beven,	Bellevernon P. O.
Legler, Nos. 1 and 2,	Henry Florsheim,	Washington,	Charles Stein,	Finleyville.
Little Alps,	Little Alps Coal Company,	Fayette,	John Underwood,	California, Washington county.
Midway,	Midway Block Coal Company,	Washington,	R. M. Ulp,	Midway P. O.
Merchant,	David Bowden,	Fayette,	David Bowden,	California, Washington county.

Nottingham,	Nottingham Coal Company,	Washington,	Daniel Campbell,	Venetia P. O.
New Eagle,	Campbell Bros.,	do.	T. B. Robbins,	New Eal.
Primrose,	T. B. Robbins,	do.	H. C. Marshall,	Midway.
Port Royal,	Port Royal Coal Company,	Westmoreland,	Jonas Crothers,	Fitz Henry.
Peacock,	Jonas Crothers,	Washington,	William Schrader,	Woods' Run.
Rostraver,	William Schrader,	Fayette,	Robert Wilson,	Elizabeth, Allegheny county.
Rea,	Bank of Commerce,	Westmoreland,	Albert Shupe,	Pittsburgh.
Stony Hill,	Stony Hill Coal Company,	Fayette,	J. W. Wilson,	California, Washington county.
Stoner,	Stoner & Co.,	Washington,	Joseph Underwood,	Cannonsburg.
Sliding Rock,	J. W. Wilson,	Greene,	Braznell,	Waynesburg.
Snow Hill,	Alps Coal Company,	Fayette,	John Crombie,	Roscoe, Washington county.
Stockdale,	Stockdale Coal Company,	Washington,	E. Z. Furlong,	do.
Stockdale,	Crombie, Skillen & Co.,	do.	S. B. Graham,	do.
Troytown,	E. Z. Furlong & Co.,	Fayette,	C. L. Snowden,	Webster, Westmoreland county.
Tremont,	John A. Wood & Son,	do.	D. M. Anderson,	Roscoe, Washington county.
Umpire,	C. L. Snowden & Co.,	do.	A. W. Osborne,	Bellevernon.
Venetia,	D. M. Anderson,	Washington,	B. F. Sadler,	Brownsville.
West Newton,	West Newton Coal Company,	Westmoreland,	W. H. Gregg,	Venetia P. O.
Waynesburg,	Sadler, King & King,	Greene,	John Guffey,	West Newton.
Wood's Run,	W. H. Gregg,	Washington,		Waynesburg
Webster,	J. & W. C. Guffey,	Westmoreland,		Woods' Run.
Walnut Hill,		Washington.		Webster.

TABLE II.—*Showing character of coal, production, number of employés, days employed, casualties, &c., in the First Bituminous Mine District.*

COLLIERIES.	Operators.	Character of coal, (Anthracite or Semi-Anthracite, Bituminous or Semi-Bituminous.)	Drift, slope, or shaft.	Number of inside workmen.	Number of outside workmen.	Total employees.	Number of days worked inside.	Number of days worked outside.	Number mules.	PRODUCTION.		CASUALTIES.				
										Number of tons produced.	Number of tons shipped.	Killed inside.	Killed outside.	Injured inside.	Injured outside.	Total killed and injured.
Albany,	Snowden & Hogg,	Bituminous,	Slope,	40	5	45	...	...	2	17,165						
Allison,	Jonathan Allison,	"	Drift,	30	5	35	...	...	5	20,000						
Abe Hays,	S. B. Hays,	"	"	47	3	50	...	...	4	9,950						
American,	Washington Coal Company,	"	"	55	5	60	...	...	6	26,407½	...	...	...	1	..	1
Black Hawk,	Black Hawk Coal Company,	"	"	Not working.												
Banner, Nos. 1 and 2,	J. M. Risher,	"	"	109	8	117	...	...	8	38,817						
Buffalo,	J. J. Steitler,	"	"	136	12	148	...	...	8	58,491	...	...	...	4	..	4
Black Diamond,	W. H. Brown Sons,	"	"	80	6	86	...	...	9	39,000						
Brier Hill,	Paterson & Sauters,	"	"	85	5	90	...	...	6	37,000						
Cedar Hill,	Cedar Hill Coal Company,	"	"	49	3	52	...	...	3	25,914						
Cincinnati,	J. S. Neel,	"	"	119	4	123	...	...	10							
Caledonia,	T. J. Wood,	"	"	110	6	116	...	...	8	37,690	...	1				
Courtney,	Courtney Coal Company,	"	Slope,	60	7	67	...	...	4	30,000						
Cliff,	H. Hutchinson,	"	Drift,	100	10	110	...	...	6	30,500	...	...	...	1	..	1
Clipper,	Clipper Coal Company,	"	"	75	7	82	...	...	6	15,270						
Catsburg,	Louis Staib,	"	"	130	10	140	...	...	...	41,208	...	...	...	1	..	1
Cook's,	J. V. H. Cook,	"	"	12	2	14	...	...	2	8,663	...	1	..	1	..	2
Champion,	Morgan & Cunningham,	"	"	No report.												
Coal Bluff,	Monongahela & P. C. Gas Coal Company,	"	"	140	8	148	...	...	6	67,704						
Carondelet,	Carondelet Coal Company,	"	"	50	9	59	...	...	7	5,646½	...	...	...	3	..	3
Climax,	Climax Coal Company,	"	Slope,	22	3	25	...	...	2	18,641						
Columbia,	J. T. Jones,	"	Drift,	79	13	92	...	...	6	19,465						
Eclipse,	John Carlin & Co.,	"	"	63	8	71	...	...	3	7,692						
Eclipse,	J. S. Neel,	"	"	121	8	129	...	...	7	44,608						
Enterprise,	V. Harding,	"	Shaft,	15	3	18	...	...	2	1,886	...	...	...	1	..	1
Garfield,	J. S. Neel,	"	Drift,	107	5	112	...	...	8							
Greenfield,	do.	"	"	50	4	54	...	...	3	16,004						
Gastonville,	P. & C. Gas Coal Company,	"	"	60	6	66	...	...	5	23,500						
Gilmore,	North Webster Coal Company,	"	"	85	11	96	...	...	6	18¾						
Globe,	Globe Coal Company,	"	"	81	4	85	...	...	6	22,641						
Hilldale,	Hilldale Coal Company,	"	"	100	7	107	...	...	5	25,374						
Hanlin,	Hanlin Coal Company,	"	"	Not working.												
Hall,	J. W. Hall & Sons,	"	"	49	5	54	...	...	5	23,800						
Ivil,	James Jones,	"	"	85	16	101	...	...	6	37,240	...	1	..	..	..	1

Iron City,	Phillip & Mittenzwere,	"	"	Not	work	ing.										
Jumbo,	Jumbo Coal and Coke Company,	"	"	205	9	214	...	...	8	110,889	...	1	..	..	..	1
Knob,	Knob Coal Company,	"	Slope,	50	6	56	...	...	7	31,500						
Little Redstone,	James Rutherford,	"	Drift,	20	2	22	...	...	2	10,000						
Little Pittsburgh,	Schmerz & Co.,	"	"	11	5	16	...	...	10	9,330						
Legler, Nos. 1 and 2,	Henry Florsheim,	"	"	66	4	70	...	...	5	45,600						
Little Alps,	Little Alps Coal Company,	"	"	14	2	16	...	...	1	3,800						
Midway,	T. Burr Robbins,	"	"	89	7	96	...	...	7	23,461						
Merchant,	David Bowden,	"	"	7	1	8	...	...	1							
Nottingham,	Nottingham Coal Company,	"	"	30	3	33	...	...	1							
New Eagle,	Campbell Bros.,	"	"	50	3	53	...	...	4	12,500						
Primrose,	T. Burr Robbins,	"	"	100	10	110	...	...	6	46,050						
Port Royal,	Port Royal Coal Company,	"	Shaft,	50	7	57	...	...	3	28,904	...	..	..	1	..	1
Peacock,	Jonas Crothers,	"	Drift,	Not	work	ing.										
Rostraver,	William Schrader,	"	"	71	5	76	...	...	4							
Rea Mines,	Bank of Commerce,	"	"	Not	work	ing.										
Stony Hill,	Stony Hill Coal Company,	"	"	60	6	66	...	...	4	14,438	...	1	..	..	..	1
Stoner,	Stoner & Co.,	"	"	60	6	66	...	...	4	24,000						
Sliding Rock,	J. W. Wilson,	"	"	No	repo	rt.										
Snow Hill,	Alps Coal Company,	"	"	105	6	111	...	...	7	46,690						
Stockdale,	Stockdale Coal Company,	"	"	Not	runn	ing.										
Stockdale,	Crombie, Skillen & Co.,	"	"	65	9	74	...	...	5	1,877	...	1	..	..	..	1
Troytown,	E. Z. Furlong & Son,	"	"	31	4	35	...	...	3	6,673						
Tremont,	John A. Wood & Son,	"	"	65	6	71	...	...	6	11,711						
Umpire,	C. L. Snowden & Co.,	"	"	80	6	86	...	...	8	18,340						
Venetia,	D. M. Anderson,	"	"	53	3	56	...	...	5	12,040						
West Newton,	West Newton Coal Company,	"	Shaft,	175	14	189	...	...	8	61,018						
Waynesburg,	Sadler, King & King,	"	"	10	2	12	...	...	...	1,824						
Wood's Run,	W. H. Gregg,	"	Drift,	50	3	53	...	...	5	15,028	...	..	..	1	..	1
Webster,	J. & W. C. Guffey,	"	"	Not	work	ing.										
Walnut Hill,	...	"	...	Not	work	ing.										
Grand Totals,	...	...	...	3,877	337	4,214	...	...	278	1,286,067	...	6	..	13	..	19

TABLE III —*Showing methods of ventilation, size of fans and furnaces, size of inlets and outlets, number of headings, number of openings, and the air measurements taken at the collieries in the First Bituminous Mine District.*

COLLIERIES.	Ventilation—Natural, Furnace, or Fan.	Number of openings.	Diameter of fan in feet.	Size of furnace in feet.	Size of inlet in square feet.	Size of outlet in square feet.	Number of headings.
Albany,		3		18 x 6½	60	54	5
Allison,	Natural,	2				42	
Abe Hays,	Furnace,	3			37	40	6
American,	"	2		18 x 6½	42	43	7
Banner,	"	3		22 x 7 x 7	56	42	12
Black Diamond,	"	7		24 x 6½	36	56	5
Buffalo,	Fan,	3	6		48½	33	6
Brier Hill,	Furnace,	3		24 x 5 x 7	40	48	
Cedar Hill,	Basket,	3		4 x 2	40	42	
Cincinnati,	Fire basket and steam exhaust,	3		3 x 2	56	35	10
Caledonia,	Furnace,	3		25 x 8	63	65	
Courtney,	"	3		24 x 7	42	42	6
Cliff,	"	2		12 x 7 x 5	40	42	6
Clipper,	"	3		6 x 20 x 5	42	42	6
Catsburg,	Fire basket,	4			42½	42	
Cook's,	Natural,	2					2
Coal Bluff,	Furnace,	3		4 x 7	44	44	4
Carondelet,	"	2		6 x 6	42	33	4
Climax,	Ring of a boiler,	2		3 x 3	63	64	6
Columbia,	Furnace,	3		6 x 8	42	42	5
Eclipse,	Natural,	2					2
Eclipse,	Furnace,	3		5 x 7	49	42	
Enterprise,	Steam exhaust,	2			66	66	
Garfield,	Furnace,	2		35 x 6½ x 6½	42	42	3
Greenfield,	"	3			42	48	2
Gastonville,	Natural,	4			36	36	
Gilmore,	Furnace,			7 x 7 x 5		40	
Globe,	"	2		24 x 7 x 6½			6
Hilldale,	"	3		5½ x 7½			
Hall,	Basket and steam exhaust,	3		4 x 1½			
Ivil,	" "	3		3 x 4	40	42	4
Iron City,	Furnace,	4		7 x 7½	42	42	4
Jumbo,	Fan,	4	12		42	36	8
Knob,	Furnace and steam exhaust,	2		9 x 6	48	57	
Little Redstone,	Natural,	6			56	56	1
Little Pittsburgh,	"	2			56	56	2
Legler,	Furnace,	3			40	40	3
Little Alps,	Natural,	2				56	2
Midway,	Furnace,	2		11 x 4	30	40	4
Merchant,	Natural,	2					2
Nottingham,	"	2				40	
New Eagle,	Furnace,	3		18 x 5		32½	
Primrose,	"	3		4 x 6	48	40	4
Port Royal,	"	2			49	56	4
Rostraver,	"	3		14 x 5	55		4
Stony Hill,	"	3					
Stoner,	Natural,	3			45	49	
Snow Hill,	Furnace boiler,	3			66	66	6
Tremont,	Furnace,	2		17 x 7	33		6
Umpire,	Natural,	2			56	49	
Venetia,	Furnace,					40	4
West Newton,	"	2			45	40	4
Webster,	Natural,	3			40	48	4
Waynesburg,		1					
Wood's Run,	Furnace,	2		5 x 6	50	42	7

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

Name of Colliery.	November—1884.						December—1884.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Amity,	480	19,800	210	8,560	530	22,160	460	19,320	300	12,600	520	23,400
Allequippa,	470	22,560	. . .	. . . .	450	21,600	. . .	. . . .	. . .	. . . .	. . .	. . . .
Banner,	400	16,000	325	13,000	485	19,400	. . .	. . . .	. . .	. . . .	. . .	. . . .
Bower Hill,	. . .	12,000	. . .	. . . .	250	12,000	. . .	. . . .	. . .	. . . .	. . .	. . . .
Castle Shannon,	100	4,200	75	3,500	100	3,500	. . .	. . . .	. . .	. . . .	. . .	. . . .
Cincinnati,	. . .	. . . .	. . .	. . . .	. . .	. . . .	250	12,000	. . .	. . . .	. . .	. . . .
Coal Bluff,	240	10,000	150	6,040	480	18,960	. . .	. . . .	. . .	. . . .	. . .	. . . .
Courtney,	182	7,000	. . .	. . . .	182	7,000	. . .	. . . .	. . .	. . . .	. . .	. . . .
Clipper,	. . .	. . . .	89	2,823	234	12,168	. . .	. . . .	. . .	. . . .	. . .	. . . .
Enterprise,	470	28,200	400	18,000	870	28,700	470	28,200	380	17,100	850	28,215
Garfield,	. . .	. . . .	. . .	. . . .	. . .	. . . .	325	14,750	. . .	. . . .	. . .	. . . .
Horner & Roberts,	. . .	. . . .	. . .	. . . .	. . .	. . . .	410	19,680	230	14,500	. . .	23,000
Lovedale,	. . .	. . . .	. . .	. . . .	. . .	. . . .	250	7,200	125	6,750	180	7,200
Oak Ridge,	185	6,475	140	5,040	360	14,400	. . .	. . . .	. . .	. . . .	. . .	. . . .
Ocean, No. 2,	. . .	20,000	. . .	. . . .	. . .	20,650	. . .	. . . .	. . .	. . . .	. . .	. . . .
Robbins,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	8,000	. . .	. . . .	. . .	15,000
Willow Grove,	300	13,500	200	7,700	300	13,500	. . .	. . . .	. . .	. . . .	. . .	. . . .
West Newton,	300	13,500	260	10,720	400	16,000	280	12,600	. . .	. . . .	410	16,450

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Albany,																		
Allison,																		
Abe Hays,																		
American,																		
Amity,	460	19,320	520	13,160	556	24,200												
Allequippa,					400	18,600												
Alps,																		
Banner,																		
Black Diamond,																		
Buffalo,																		
Brier Hill,																		
Cedar Hill,																		
Cincinnati,																		
Caledonia,																		
Courtney,																		
Cliff,																		
Clipper,																		
Catsburg,																		
Cook's,																		
Coal Bluff,	300	12,040	130	6,800	520	22,920												
Carondelet,																		
Climax,																		
Columbia,																		
Eclipse,																		
Eclipse,																		
Enterprise,			372	16,700	850	28,050												
Garfield,																		
Greenfield,																		
Gastonville,																		
Gilmore,																		

Globe,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Hilldale,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Hall,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Horner & Roberts,	495	23,760	. . .	. . .	370	21,830	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Horner & Roberts, No. 3,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Ivil,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Iron City,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Jumbo,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Knob,	. . .	11,225	. . .	11,000	. . .	11,270	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Little Redstone,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Little Pittsburgh,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Legler,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Lovedale,	200	10,800	135	6,450	180	8,640	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Midway,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Merchant,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Milesville,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Nottingham,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
New Eagle,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Oak Ridge,	80	3,680	254	9,144	530	21,200	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Primrose,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Port Royal,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Rostraver,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Robbins,	300	14,400	230	10,350	360	15,120	175	7,000	175	7,000	275	11,000	. . .	. . .	. . .	. . .	. . .	. . .
Stony Hill,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Stoner,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Snow Hill,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Street's Run,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Tremont,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Umpire,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Venetia,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
West Newton,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Webster,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Waynesburg,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Wood's Run,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	APRIL.						MAY.						JUNE.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Albany,																		
Allison,																		
Abe Hays,																		
American,																		
Amity,			250	8,750	500	21,000												
Allequippa,	390	18,135	380	17,670	400	18,600												
Alps,																		
Banner,																		
Black Diamond,																		
Buffalo,																		
Brier Hill,			225	10,000	225	10,000												
Cedar Hill,																		
Cincinnati,																		
Caledonia,																		
Courtney,																		
Cliff,																		
Clipper,																		
Catsburg,																		
Cook's,																		
Coal Bluff,	580	14,000	130	5,460	400	17,600												
Carondelet,																		
Climax,																		
Columbia,																		
Eclipse,																		
Eclipse,																		
Enterprise,																		
Garfield,																		
Greenfield,																		
Gastonville,																		
Gilmore,																		

Globe,																		
Hilldale,																		
Hall,																		
Horner & Roberts,					220	7,920												
Horner & Roberts, No. 3,					550	26,950												
Ivil,																		
Iron City,																		
Jumbo,																		
Knob,		10,550				10,700												
Little Redstone,																		
Little Pittsburgh,																		
Legler,																		
Lovedale,																		
Midway,																		
Merchant,																		
Milesville,	265	10,000	320	12,000	480	17,760												
Nottingham,																		
New Eagle,																		
Oak Ridge,																		
Primrose,																		
Port Royal,																		
Rostraver,																		
Robbins,	150	7,200	235	12,000	225	10,800												
Stony Hill,																		
Stoner,																		
Snow Hill,																		
Street's Run,	270	9,450			320	11,200												
Tremont,																		
Umpire,																		
Venetia,																		
West Newton,																		
Webster,																		
Waynesburg,																		
Wood's Run,																		

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Albany,																		
Allison,																		
Abe Hays,																		
American,																		
Amity,																		
Allequippa,																		
Alps,																		
Banner,																		
Black Diamond,																		
Buffalo,																		
Brier Hill,																		
Cedar Hill,																		
Cincinnati,																		
Caledonia,																		
Courtney,																		
Cliff,																		
Clipper,																		
Catsburg,																		
Cook's,																		
Coal Bluff,																		
Carondelet,																		
Climax,																		
Columbia,																		
Eclipse,																		
Eclipse,																		
Enterprise,																		
Garfield,																		
Greenfield,																		
Gastonville,																		
Gilmore,																		

Globe,
Hilldale,
Hall,
Horner & Roberts,
Horner & Roberts, No. 3,
Ivil,
Iron City,
Jumbo,
Knob,
Little Redstone,
Little Pittsburgh,
Legler,
Lovedale,
Midway,
Merchant,
Milesville,
Nottingham,
New Eagle,
Oak Ridge,
Primrose,
Port Royal,
Rostraver,
Robbins,
Stony Hill,
Stoner,
Snow Hill,
Street's Run,
Tremont,
Umpire,
Venetia,
West Newton,
Webster,
Waynesburg,
Wood's Run,

TABLE III.—VENTILATION OF COLLIERIES.—*Continued.*

NAME OF COLLIERY.	OCTOBER.						NOVEMBER.						DECEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Albany,	232	13,920	236	14,160	234	14,040	250	15,000	96	6,144	262	14,148	270	16,200	98	6,272	280	15,660
Allison,																		
Abe Hays,																		
American,																		
Amity,																		
Allequippa,																		
Alps,	450	24,000	480	28,800	490	29,400												
Banner,	345	19,420	300	16,800	350	18,300							285	15,960	225	9,675	425	17,850
Black Diamond,							170	6,778	160	6,299	325	18,200	160	6,615	135	5,940	330	18,480
Buffalo,																		
Brier Hill,													250	12,000				
Cedar Hill,																		
Cincinnati,																		
Caledonia,													210	13,230	220	12,880	200	13,000
Courtney,																		
Cliff,																		
Clipper,																		
Catsburg,																		
Cook's,																		
Coal Bluff,	430	18,960	430	18,960	470	20,720							300	13,240	150	6,610	530	23,360
Carondelet,							66	3,168	66	2,970	128	4,224			183	4,536	213	7,342
Climax,								8,200				8,000						
Columbia,																		
Eclipse,																		
Eclipse,													255	12,495	148	8,244	365	15,330
Enterprise,														8,880				12,720
Garfield,																		
Greenfield,																		
Gastonville,																		
Gilmore,																		

Globe,																		
Hilldale,																		
Hall,																		
Horner & Roberts,																		
Horner & Roberts, No. 3,																		
Ivil,																		
Iron City,																		
Jumbo,																		
Knob,													800	14,400	140	6,720		
Little Redstone,																		
Little Pittsburgh,																		
Legler,																		
Lovedale,																		
Midway,	185	5,550	125	5,000														
Merchant,																		
Milesville,																		
Nottingham,																		
New Eagle,																		
Oak Ridge,																		
Primrose,													230	11,040	120	5,760	375	15,375
Port Royal,													240	10,080	175	8,575	200	11,200
Rostraver,							240	6,800	150	5,250	195	6,625						
Robbins,																		
Stony Hill,																		
Stoner,	360	16,200	300	13,500			360	16,200			300	13,500					300	15,500
Snow Hill,																		
Street's Run,																		
Tremont,																		
Umpire,														12,000				11,000
Venetia,																		
West Newton,	280	11,760	200	8,400	290	12,130							270	11,340	210	8,220	290	12,180
Webster,																		
Waynesburg,																		
Wood's Run,																		

TABLE IV.—*List of accidents occurring in the mines of the First Bituminous Mine District for the year ending December 31, 1885.*

Date of accident.	Name of Person Injured.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident.
Mch. 28	John Harden,	45	Married,	5	Cook,	Washingtou,		Killed by falliug slate.
April 13	John Ashworth,	39	Siugle,		Tomer & McKinley,	do.		do. do.
May 6	Louis Eader,		Married,		Cliff,	do.		Seriously hurt by falliug slate.
July 24	James Grier,				Buffalo,	do.		Injured by falling slate.
24	Peter Areutz,		Married,		Caledonia,	do.		Killed by falling slate.
Aug. 5	William McCulloch,		do.	4	Stony Hill,	Fayette,	Aug. 10	do. do.
19	Henry Meyers,		do.		Catsburg,	Washington,	21	Leg crushed by falling coal and slate.
Sept. 24	Gotlieb Botzer,				Cook,	do.		Burnt by blasting-powder about the face, arms, and breast.
Oct. 5	Michael Moony,		Married,	1	Jumbo,	do.	Oct. 12	Killed by falling slate.
10	Robert Greeuwood,	15	Siugle,		Ivil,	do.	11	Killed by being run over by dilly trip.
Nov. 5	Samuel Elmer,	26			Carondelet,	Fayette,		Hurt by falling coal.
11	Fred. Dryer,	29			do.	do.		Hurt by falling slate.
16	August Shultz,	51			American,	Washington,		Hurt by falling coal.
24	Christ Dryer,	26			Carondelet,	Fayette,		Hurt by falling slate.
Dec. 8	Alex. Gray,				Buffalo,	Washiugton,		do. do.
16	Edward Buntou,				do.	do.		Hurt by falliug slate and coal.
26	James Proctor,				do.	do.		Hurt by falling slate.
12	James Leight,	43			Harding,	do.		do. do.
12	Christ Howells,				Port Royal,	Westmoreland,		Struck iu the eye by a wedge.

TABLE V.—*Showing the grand total of employés, horses, mules, engines, pumps, boilers, and powder employed, tons of coal mined and shipped, fatal and non-fatal accidents, &c., in the First Bituminous Mine District for the year ending December 31, 1885.*

Name of Counties and Parts of Counties in the District.	Total number of men employed.	Total number of boys employed.	Total number of horses and mules employed.	Total number of engines and pumps employed.	Total number of boilers employed.	Total number of kegs of powder consumed.	Total number of tons of coal produced.	Total number of tons of coal shipped.	Total number of fatal accidents.	Total number of non-fatal accidents.	Total number of times air measurements were taken.
Washington,	2,946	.....	183	29	28	.....	1,059,164	.....	5	9	63
Greene,	20	.....	1	3	1	.....	2,824				
Part of Fayette lying along the Monongahela river,	738	.....	67	7	7	.....	205,471	.....	1	3	23
Part of Westmoreland lying between the Monongahela and Youghiogheny rivers,	510	.....	27	4	6	.....	135,655	.....	.....	1	13

SECOND DISTRICT.

To the Honorable J. SIMPSON AFRICA, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania:*

SIR: In compliance with the tenth section of the act of the General Assembly, approved the 30th day of June, A. D. 1885, I have the honor of submitting my first report of the inspection of mines in the Second bituminous coal district of Pennsylvania for the year ending December 31, 1885. Since the revision of the act increasing the number of mine inspectors, and re-districting the bituminous coal field, the Second district comprises that part of Allegheny county lying east of the Allegheny, the Youghiogheny, and the Monongahela rivers, and all that part of Westmoreland county lying north and east of the Youghiogheny river, excepting the mines east of Beatty's station on the Pennsylvania railroad, and the mines on the West Penn railroad.

I entered upon the duties of my office shortly after I received my commission, and have visited all the mines in the district. Two weeks of my time was taken up with the examination of mining-bosses. The board issued forty-four certificates of service, and twenty-one to applicants who successfully passed an examination.

These examinations, together with the other duties pertaining to the office, have wholly occupied my time.

The condition of the mines in this district is improving, although there are some which do not come up to the standard required by law. These will receive my special attention.

I report forty-two accidents, six having occurred in 1884, (but not reported,) three of which were fatal; of the thirty-six accidents in 1885, eighteen occurred since my appointment, five of which were fatal.

Cause of Fatal Accidents.

By fall of slate,	12
By fall of roof,	3
By mine wagons,	2
By gas explosion,	1
By injuries received with a post,	1
Total,	19

Cause of Non-Fatal Accidents.

By fall of slate,	11
By fall of coal and roof,	3

By gas explosion,	3
By mine wagons,	6
Total,	23
Widows caused by fatalities,	9
Orphans caused by fatalities,	49

Mining Statistics for the Year Ending December 31, 1885.

Number of mines in the district,	74
Number of mines in the district operated,	64
Number of mines opened,	3
Number of mines exhausted,	1
Number of persons employed in the mines,	5, 928
Number of persons employed outside,	1, 570
Tons of coal mined,	3, 929, 728
Average number of days worked,	225
Tons of coal mined to each fatal accident,	245, 608
Tons of coal mined to each non-fatal accident,	196, 486
Number of employés to each fatal accident,	469
Number of employés to each non fatal accident,	375
Number of mules in use,	607
Number of coke ovens operated,	2, 399

The foregoing statistics are a summary of the reports from all the mines, excepting three, and these I estimated, taking former statements as a basis.

In conclusion, I beg to say that, in my opinion, that portion of the mining law which requires the mine inspectors to test the scales and brand the mine wagons should be changed so as to relieve them from this duty. It occupies too much time, which should be devoted to examination of mines.

In addition to the tables, &c., accompanying this report, will be found a photograph of the derrick and buildings of the Standard mines, furnished by Morris Ramsay, mining engineer for the company. The plans referred to in the description of the Westmoreland shaft have already been forwarded by F. Z. Schellenberg, superintendent.

All of which is respectfully submitted.

Yours, &c., WILLIAM JENKINS,

IRWIN, PA., *February 1, 1886.* *Inspector.*

EXAMINATION OF MINES AND MINE IMPROVEMENTS.

Alpsville Mine.

This mine is located on the Baltimore and Ohio railroad in Allegheny county, and is operated by Thomas Hacket & Co.; superintendent, Samuel Smith; mining-boss, James Queales.

This is a drift opening, and ventilated by natural means. Air measurements taken at the inlet show a velocity of one hundred and forty feet per

minute, section area, fifty-six square feet, at the outlet, seventy-five feet per minute, section area, forty-five square feet.

I visited this mine August 28 and November 6, and found the ventilation defective.

One hundred and forty-four persons are employed.

Amieville Mine.

This mine is located on the Baltimore and Ohio railroad in Westmoreland county, and is operated by N. J. Bigley. Superintendent, Hugh McGinn; mining-boss, W. H. Ambler.

This is a drift opening, and worked on the single-entry or block system. There are two face entries, two hundred yards apart, and the butt entries are driven at right angles from them. The mine is ventilated by natural means, in connection with a furnace. Air measurements taken near the face of No. 7 butt entry show a velocity of one hundred and fifty feet per minute, section area, forty-eight square feet, and at the outlet two hundred and eighty feet per minute, section area, sixty square feet. The air is divided into two currents. I visited this mine September 1 and November 18, and found it in good condition.

One hundred and eighty-four persons are employed.

Alice Mine.

This mine is located on a branch of the South-West Pennsylvania railroad, and is operated by J. M. Schoonmaker. Superintendent, J. M. White; mining-boss, Alexander Davenport.

This is a slope opening, worked on the double-entry system, and ventilated with a furnace. At the time I visited this mine, September 25, the furnace was partially destroyed by fire, and ventilation was defective. Air measurements could not be taken. In their October statement, they report the furnace rebuilt larger, and with all the modern improvements. They also give air measurements as follows, viz: At the inlet, a velocity of one hundred and ninety feet per minute, section area, eighty-four square feet; at No. 6 entry three hundred and sixty feet per minute, section area forty-eight square feet, and at the outlet, four hundred feet per minute, section area, forty-eight square feet.

Thirty-four persons are employed.

Alexandria Mine.

This mine is located on a branch railroad intersecting the Pennsylvania railroad, and is operated by the Alexandria Coal Company. Superintendent, Thomas Donahoe; mining-boss, A. J. Cook.

This is a drift opening, worked on the single-entry system, and ventilated by natural means. Air measurements taken at the inlet show a velocity of two hundred and ten feet per minute, section area, sixty square feet, and at the outlet, one hundred and twenty feet per minute, section area, forty-eight square feet. They built, in 1885, forty-five coke ovens,

eighteen houses, and seven hundred feet of railroad sidings. I visited this mine September 19, and found it in good condition.

Seventy-eight persons are employed.

Arnold Mine.

This mine is located on the Allegheny Valley railroad in Westmoreland county in the Freeport coal measure, and is operated by the miners. Mining-boss, William Beane.

This mine has three drift openings, and is ventilated with a furnace. Air measurements taken at the inlet show a velocity of one hundred and fifteen feet per minute, section area, thirty-five square feet, and at the outlet, one hundred and eighty feet per minute, section area, sixty-six square feet.

I visited this mine October 20, and found the ventilation and the drainage good.

Eighteen persons are employed.

Bessemer and Rising Sun Mines.

These mines are located on a branch of the South-West Pennsylvania railroad in Westmoreland county, and are operated by McClure & Co. Superintendent, J. J. Maloney; mining-boss, John Narey.

These mines are drift openings. The Bessemer is worked on the double-entry system, and ventilated with a furnace. Air measurements taken at the inlet show a velocity of one hundred and sixty feet per minute, section area, fifty-six square feet; at the face of entry, eighty feet per minute, section area, fifty-nine square feet, and at the outlet, four hundred feet per minute, section area, forty-six square feet.

Forty-five persons are employed.

The Rising Sun mine is ventilated by natural means. Air measurements taken at the outlet show a velocity of one hundred and seventy feet per minute, section area, thirty-four square feet. I visited these mines September 24, and found them in good condition.

Eighteen persons are employed.

Buckeye Mine.

This mine is located on the Mt. Pleasant branch of the Baltimore and Ohio railroad in Westmoreland county, and is operated by the A. C. Cochran Coal and Coke Company. Superintendent, A. C. Cochran; mining-boss, John Allen.

This is a slope opening, worked on the single-entry or block system. The coal is hauled to the top of slope with a stationary engine. The mine is drained with a steam pump, and ventilated by natural means and exhaust steam. Air measurements taken at the inlet show a velocity of ninety feet per minute, section area, sixty square feet, and at the outlet one hundred and fifty feet per minute, section area, sixty square feet. I visited this mine September 24, and found the ventilation defective.

Forty-seven persons are employed.

Blythe Mine.

This mine is located on the Baltimore and Ohio railroad in Westmoreland county, and is operated by the Youghiogheny and Ashtabula Coal and Coke Company. Superintendent, John Blythe; mining-boss, William Welsh.

This mine has three drift openings, and is worked on the single-entry and on the double-entry systems, and is ventilated with a furnace. Size of furnace bed, twenty-four square feet, length of arch, forty-five feet. I examined this mine, August 29, and discovered a small quantity of fire-damp along the roof at the face of the main entry, which had been driven nearly three hundred feet past the cut-through, but, with the quantity of air moving at this point, there was not gas enough to cause any danger. Air measurements taken at the inlet show a velocity of one hundred and thirty feet per minute, section area, thirty-six square feet, and at the cut-through, near the face of the main entry, one hundred and seventy-one feet per minute, section area, thirty-six square feet, and at the outlet, two hundred and ninety feet per minute, section area, forty-two square feet. I considered the mine in good condition in every respect.

August 28, they lost No. 6 butt entry on account of a creep. A gas explosion occurred September 12, causing the death of William Bradley, and severely burning James Hamilton. I was called to the mine September 13. I made a careful examination of the mine September 13 and 14, with the following results, viz: They were driving rooms on each side of an abandoned air-course, and the miners who were driving these rooms, being anxious to know how far they were driven, knocked the brattice down, and entered this air-course, with naked lamps, fired the gas and caused the explosion. I also discovered that there had been a fall at a clay vein in this air-course, and that gas was escaping. Gas had also accumulated at the head of No. 6 entry, and on top of the falls in some of the old rooms. I notified them of the fact, and instructed them to use safety-lamps when going through these rooms. I visited the mine again October 24, and found it in better condition, but not altogether free from standing gas. Air measurements taken at this time showed sixteen thousand three hundred and eighty-one feet per minute going out at the furnace, and well-distributed through the mine.

One hundred and thirty-two persons are employed.

The accompanying map shows the plan of the mine where the explosion occurred.

Coulter & Huff Mine.

This mine is located on the Pennsylvania railroad in Westmoreland county, and is operated by Coulter & Huff. Superintendent, A. W. Jones; mining-boss, Ralph Dawson.

This is a slope opening, worked on the single-entry or block system, and ventilated with a Murphy fan, six feet in diameter. Air measurements

AIR COURSE
DOOR
MAIN ENTRY
AIR COURSE
WORKED OUT AREA
WORKED OUT AREA
FALLEN
FALLEN
SIXTH ENTRY
TO PIT MOUTH

PART PLAN

OF

BLYTHE MINE

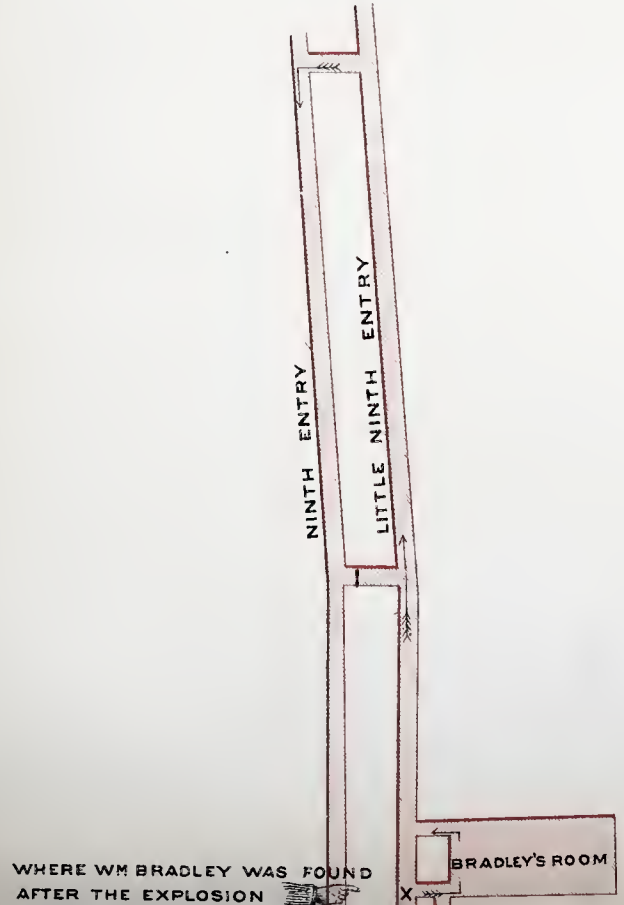
OF THE

Y. AND A. COAL CO.

Scale, 100 Ft. to 1 Inch.

BY Wm JENKINS,

INSPECTOR 2ND DIST.



taken at the inlet showed a velocity of two hundred and thirty feet per minute, section area, sixty square feet; at the face of No. 8 butt entry, one hundred and seventy feet per minute, section area, forty-eight square feet, and at the outlet, four hundred feet per minute, section area, forty-five square feet. I visited this mine October 17, and found it in good condition.

One hundred and six persons are employed.

Dillinger Mine.

This mine is located on the South-West Pennsylvania railroad in Westmoreland county, and is operated by Dillinger & Co. Superintendent, John L. Dillinger; mining-boss, John L. Hixsion.

This mine has two openings, a shaft, fifty feet deep, and a drift, and is ventilated by natural means. Air measurements taken at the inlet showed a velocity of three hundred and forty feet per minute, section area, forty-nine square feet, and at the outlet, two hundred and ten feet per minute, section area, forty-nine square feet. The ventilation was fair, but the drainage was imperfect. I visited this mine October 20.

Thirty persons are employed.

Donnelly Mines.

These mines are located on the South-West Pennsylvania railroad in Westmoreland county, and are operated by McClure & Co. Superintendent, J. B. Henry; mining-boss, Andrew Neish.

No. 1 is a drift opening, worked on the double-entry system, and ventilated by natural means. Air measurements taken at the outlet show a velocity of five hundred and sixty feet per minute, section area, fifty-six square feet, and at the face of butt entry, two hundred and forty feet per minute, section area, fifty-six square feet.

Ten persons are employed.

No. 2 is a drift opening, ventilated by natural means. Air measurements taken at the inlet show a velocity of four hundred and ten feet per minute, section area, fifty-six square feet, and at the outlet, two hundred and ten feet per minute, section area, fifty-six square feet.

Twenty-six persons are employed.

I visited these mines October 5, and found them in good condition.

Duquesne Mine.

This mine is located on the Pennsylvania railroad in Allegheny county, and is operated by J. B. Corey. Superintendent, J. B. Corey; mining-boss, J. B. Corbett.

This is a drift opening, ventilated with a small basket furnace, with poor results. The ventilation was defective in the entry where most of their miners were working. Air measurements taken at the inlet showed a velocity of one hundred and fifty feet per minute, section area, thirty-nine square feet, and at the outlet, one hundred and forty feet per minute, section area, forty square feet. At the time of my second visit, they were

repairing the roof and retimbering the mine to the double parting, preparatory to putting in a locomotive. They will also build a furnace. I visited this mine October 20.

One hundred and forty-four persons are employed.

Emma Mine.

This mine is located on the South-West Pennsylvania railroad in Westmoreland county, and is operated by J. W. Overholt, agent. Superintendent, J. W. Overholt; mining-boss, Adam Whitehead.

This is a drift opening, ventilated by natural means. Air measurements taken show a velocity at the outlet of one hundred and ninety-five feet per minute, section area, forty-six square feet. I visited this mine September 25, and found it in good condition.

Fifteen persons are employed.

Eureka Mine.

This mine is located on the Baltimore and Ohio railroad in Westmoreland county, and is operated by Stoner, Upstill & Co. Superintendent, E. A. Upstill; mining-boss, Samuel Bateman.

This is a drift opening, ventilated with a furnace. At the time of my first visit, there was a creep in No. 5 entry, making it dangerous as a hauling road, and for the miners to pass through; I ordered them to put it in a safe condition. Air measurements taken at the inlet showed a velocity of two hundred and ten feet per minute, section area, forty-two square feet, and at the outlet, two hundred and twenty feet per minute, section area, forty-two square feet. At the face of the entries there was not air enough to move the anemometer. I ordered the mining-boss to put up some doors, and convey the air to the face of the entries. At the time of my second visit, the mine was in good condition. I visited the mine August 22 and December 24.

Forty-one persons are employed.

Frankstown Mine.

This mine is located on the Frankstown road in Allegheny county, and is operated by John Etter, who is also superintendent and mining-boss.

This is a drift opening, and ventilated by natural means. The ventilation and the drainage were defective, but the owner assured me this would be remedied. I visited this mine October 1.

Eighteen persons are employed.

Greensburg Mine.

This mine is located on the South-West Pennsylvania railroad in Westmoreland county, and is operated by the Greensburg Coal Company. Superintendent, A. W. Jones; mining-boss, Thomas L. Jones.

This is a drift opening, worked on the single-entry or block system, and ventilated with a furnace. At the time of my first visit, they were depending on the natural current of air for ventilation, which was defective, and

I ordered them to fire the furnace. Air measurements taken in No. 1 entry showed velocity of two hundred and seventy feet per minute, section area, thirty square feet, and in No. 2 entry seventy feet per minute, section area, forty-two square feet. I visited this mine September 18 and December 31.

Sixty persons are employed.

Hampton Mine.

This mine is located near Wilkinsburg in Allegheny county, and is operated by the Hampton Coal Company. Superintendent, Major Lawton; mining-boss, Edgar Thompson.

This is a drift opening, operated on the double-entry system, ventilated with a furnace. Air measurements showed a velocity at the inlet of one hundred and thirty feet per minute, section area, forty-two square feet, and at the outlet, six hundred and thirty feet per minute, section area, forty-two square feet. There are four inlets to this mine. I visited the mine September 30, and found it in fair condition.

One hundred and forty persons were employed.

Hazelett Mines.

These mines are located on the Mt. Pleasant branch of the Baltimore and Ohio railroad in Westmoreland county, and are operated by the Rafferty & Donnelly Coal and Coke Company. Superintendent, George Wilson; mining-boss, Orlando Flesher.

They consist of a shaft and a slope, and are worked on the double-entry system. The shaft is ventilated with exhaust steam. Air measurements taken at the inlet show a velocity of one hundred and ten feet per minute, section area, thirty-six square feet. The coal is hauled from the dip with a stationary engine and wire rope. The slope is ventilated by natural means. I could not take air measurements here. I visited the mines September 23 and October 16, and found them in bad condition.

Eighty-four persons are employed.

Hecla Mine.

This mine is located on the Sewickley branch of the South-West Pennsylvania railroad in Westmoreland county, and is operated by the Hecla Coke Company, Limited. Superintendent, Thomas Laird; mining-boss, William S. Ramsey.

This is a shaft opening, ventilated with a fan, eighteen feet in diameter, (built this year.) At forty-five revolutions per minute, it forces out about thirty thousand cubic feet of air per minute, with plenty of reserve power to increase the speed, and the quantity of air, if it should be required. They are making an overcast to shorten route, and divide the current of air, which will give them better results with the same power. I visited this mine December 28, and found it in good condition.

One hundred and fourteen persons are employed.

Keystone Mines.

These mines are located on the Baltimore and Ohio railroad in Allegheny county, and are operated by William H. Brown & Sons. Superintendent, A. J. Shanks; mining-boss, Michael Dodds.

These mines are drift openings, and ventilated with furnaces. Air measurements taken at the inlet showed a velocity of one hundred and eighty feet per minute, section area, forty-five square feet, and at the outlet, sixty feet per minute, section area, forty-five square feet. I visited these mines August 26 and November 5, and found them in good condition.

Eighty persons are employed.

Manor Valley Mine.

This mine has been opened, and all the improvements were made during the year 1885. It is located on the Manor Valley railroad, which intersects the Pennsylvania railroad at Manor station, Westmoreland county, and is operated by the Manor Gas Coal Company. Superintendent, H. B. Ford; mining-boss, Joseph Weightman.

This is a drift opening, worked on the double-entry system, and has been running nearly full time. I visited this mine November 4, and found it in fair condition.

Forty-six persons were employed in December.

M. M. & M. Mine.

This mine is located on the Sewickley branch of the South-West Pennsylvania railroad, and is operated by the Mutual Mining and Manufacturing Company. Superintendent, Robert S. Jamison; mining-boss, William M. Heart, junior. This is a drift opening, operated on the single-entry system, and ventilated by natural means. Air measurements taken show inlet velocity of one hundred and ninety feet per minute, section area, forty-six square feet, and outlet, two hundred and thirty feet per minute, section area, forty-six square feet. There are five openings to this mine. I visited the mine December 29, and found the ventilation and drainage in fair condition.

One hundred and ten persons were employed.

Monmouth Mine.

This mine is located on the Sewickley branch of the South-West Pennsylvania railroad in Westmoreland county, and is operated by J. W. Moore. Superintendent, J. D. Boyd; mining-boss, Jacob Peffer.

This is a slope on the angle or pitch of the coal, and is driven nearly eight hundred feet with two flats on each side, turned off at right angles. The coal is hauled to the mouth of these flats with mules, and from there to the tipple with a stationary engine and wire rope. During the year 1885, two miles of railroad, twenty-one blocks of houses, one hundred and fifty-nine coke ovens, and the necessary buildings required at the works have been built. The mine is ventilated with exhaust steam. Air meas-

urements taken at the inlet showed a velocity of two hundred and twenty feet per minute, section area, forty-two square feet, and at the outlet, one hundred and sixty-three feet per minute, section area, forty-two square feet. I visited the mine September 16 and December 30, and found the ventilation defective in some of the entries.

Fifty-seven persons are employed.

Mayfield Mine.

This mine is located on a branch of the South-West Pennsylvania railroad in Westmoreland county, and is operated by McClure & Co. Superintendent, J. B. Henry; mining-boss, Andrew Neish.

This is a drift opening having three inlets, and is ventilated by natural means. Air measurements taken at the face of No. 2 butt entry showed a velocity of one hundred and forty feet per minute, section area, fifty-six square feet, and at the outlet, two hundred and ten feet per minute, section area, fifty-six square feet. I visited this mine October 5, and found the ventilation and the drainage good.

Eleven persons are employed.

Morewood Mines.

These mines are located on a branch of the South-West Pennsylvania railroad in Westmoreland county, and are operated by the South-West Coal and Coke Company. Superintendent, Erskine Ramsay; mining-boss, J. C. Menocher.

They are shaft openings, worked on the double entry system. These mines emit fire-damp in small quantities, and are ventilated with a Champion ventilator. Air measurements taken show a velocity at the inlet of two hundred and seventy feet per minute, section area, fifty-six square feet, and at the face of No. 2 entry, one hundred and thirty feet per minute, section area, fifty-six square feet, and at the outlet, two hundred and eighty feet per minute, section area, fifty-six square feet. I visited these mines September 21, and found the ventilation and the drainage good.

One hundred and seven persons are employed.

Mullen Mine.

This mine is located on the Mt. Pleasant branch of the Baltimore and Ohio railroad in Westmoreland county, and is operated by the Mullen & Strickler Coal and Coke Company. Superintendent, William D. Mullen; mining-boss, John S. Bell.

This is a drift opening, worked on the single-entry system, and ventilated by natural means. Air measurements taken at the inlet showed a velocity of six hundred and seventy feet per minute, section area, fifty-six square feet, and at the face of entry, one hundred and thirty-five feet per minute, section area, fifty-six square feet. I visited this mine September 23, and found it in good condition.

Twenty persons are employed.

M. Graver Mine.

This mine is located on the Allegheny Valley railroad in Allegheny county, and is operated by M. Graver & Co. Superintendent, William Fisher; mining-boss, George Hill.

This is a drift opening, with three inlets, worked on the single-entry or block system, and ventilated with a furnace. At the time of my first visit, I found the ventilation defective, caused by a door in the main hauling entry. This door was necessarily frequently opened, and caused the air from the outside to go to the furnace instead of through the mine. In order to remedy this, they closed the door at this point, and made an overcast, which gave them a regular current of air, well distributed through the mine. I visited the mine October 3, and found it in good condition.

One hundred and fifteen persons are employed.

Oak Hill Mine.

This mine is located on a branch railroad which intersects the Pennsylvania railroad at Turtle creek in Allegheny county, and is operated by the New York and Cleveland Gas Coal Company. Superintendent, John McIntosh; mining-boss, William P. Owens.

This is a drift opening with four inlets, worked on the single-entry system, and ventilated with a furnace. Air measurements taken at the outlet showed a velocity of seven hundred feet per minute, section area, forty-six square feet, and No. 3 entry, nine ty feet per minute, section area, forty-two square feet. Measurements were also taken at each of the other inlets and showed good results. I visited the mine September 4 and December 26, and found it in good condition.

Two hundred and ninety persons are employed.

Ocean Mine.

This mine is located on the Baltimore and Ohio railroad at Scott Haven in Westmoreland county, and is operated by the Youghiogheny River Coal Company. Superintendent, J. F. Hosack; mining-boss, George J. Jewell.

This is a drift opening, having two inlets, drained by means of a syphon, and ventilated with a furnace. Air measurements taken near the face of the main entry showed a velocity of two hundred and thirty feet per minute, section area, forty-five square feet; outlet, four hundred and eighty feet per minute, section area, ninety square feet; at inlet No. 1, two hundred and fifty feet per minute, section area, forty-eight square feet, and at inlet No. 2, one hundred and fifty feet per minute, section area, thirty-seven square feet. I visited this mine August 31 and October 26, and found the ventilation in good condition.

Two hundred and seventy-two persons are employed.

Osceola Mine.

This mine is located on the Baltimore and Ohio railroad in Allegheny

county, and is operated by the Osceola Coal Company. Superintendent, J. H. Dewees; mining-boss, H. D. Penman.

This is a drift opening, worked on the double-entry system. Ventilated by natural means, and is defective. A small quantity of fire-damp is emitted, but the mine is examined every morning before the miners enter. They will build a furnace, which will give them good ventilation. In 1885, they put in a new boiler and a steam pump at the river, with which they supply the boiler. Cost of improvements, two thousand dollars. I visited this mine October 27 and November 7. Air measurements show six thousand one hundred and forty cubic feet of air passing out per minute, section area, forty-two square feet.

One hundred and twenty-seven persons are employed.

Penn Gas Coal Company Mines.

These mines are in Westmoreland county, and consist of the following, viz: Coal Run, Shaft No. 1, Shaft No. 2, and No. 4 mine. Superintendent, John F. Wolf.

Coal Run mine is located one mile north of Irwin on a lateral railroad, which intersects the Pennsylvania railroad at Irwin. Mining-boss, William Rodgers.

This is a drift opening, worked on the double-entry system, and ventilated with a furnace. Air measurements taken at the outlet showed a velocity of six hundred and twenty feet per minute, section area, forty-five square feet, and at the cut-through near the face of No. 16 butt entry, one hundred and ninety feet per minute, section area, forty-eight square feet. I visited this mine September 28, and found the ventilation, drainage, and roads in good condition.

Two hundred and fifty-five persons are employed.

Shaft No. 1.

Located on the Pennsylvania railroad near Irwin. Mining-boss, John Bolam.

This is a shaft opening, worked on the double-entry system, and ventilated with a fan. Air measurements taken at the outlet showed a velocity of six hundred and ten feet per minute, section area, forty-nine square feet, and at the cut-through near the face of the main entry, five hundred and seventy feet per minute, section area, thirty-nine square feet. During the year, they built a brick arched over-cast for the return air to pass over. This improvement, with ordinary care, will last until the mine is worked out. I visited the mine October 7, and found the ventilation, the drainage, and the roads in good condition.

Two hundred and sixty persons are employed.

Shaft No. 2.

Located one mile south of Irwin on the Youghiogheny railroad, which intersects the Pennsylvania railroad at Irwin. Mining-boss, Michael McCauley.

This is a shaft opening, worked on the double-entry system, and ventilated with a fan. The air is divided into two currents, and well conducted to the face of the entries. This is necessary on account of the large quantity of fire-damp generated in the mine. Air measurements taken at the outlet showed a velocity of one thousand one hundred and fifty feet per minute, section area, forty square feet; at the face of the lower main entries, three hundred and ninety feet per minute, section area, forty square feet, and in the north side of mine, three hundred and seventy feet per minute, section area, forty-five square feet. During the year 1885, they lined the shaft with flooring, and timbered the slope, making it a good traveling road.

I visited this mine October 23, and found the ventilation, the drainage, and the roads in good condition.

Two hundred and forty-eight persons are employed.

No. 4 Mine.

This mine is located on the Youghiogheny railroad near its intersection with the Baltimore and Ohio railroad. Mining-boss, Samuel Stone.

This is a drift opening, having three inlets, and is worked on the double-entry system, and ventilated with a furnace. Air measurements taken at the inlet showed a velocity of two hundred and eighty feet per minute, section area, thirty-six square feet; at the outlet, five hundred feet per minute, section area, seventy-two square feet, and at the face of No. 17 entry, one hundred and sixty feet per minute, section area, thirty-six square feet. I visited this mine September 10 and December 18, and found the ventilation, the drainage, and the roads in good condition.

Two hundred and forty-four persons are employed.

Plum Creek Mine.

This mine is located on a branch of the Allegheny Valley railroad in Allegheny county, and is operated by the New York and Cleveland Gas Coal Company. Superintendent, J. W. Doak; mining-boss, Robert Doak.

This is a drift opening, operated on the single-entry system, and ventilated by natural means. Air measurements taken in No. 6 butt entry showed a velocity of fifty feet per minute, section area, forty-eight square feet. I visited this mine October 21, and found the ventilation defective.

One hundred and twenty-three persons.

Port Royal Mine.

This mine is located on the Baltimore and Ohio railroad in Westmore-

land county, and is operated by the Port Royal Coal Company. Superintendent, H. C. Marshall; mining-boss, Joseph Readfurn.

This is a shaft opening, operated on both sides of the Youghiogheny river, works connected with a tunnel under the river, and is ventilated with exhaust steam. Air measurements taken at the inlet showed a velocity of one hundred and ten feet per minute, section area, fifty-four square feet; at No. 5 butt entry, one hundred and thirty feet per minute, section area, thirty-nine square feet, and at the outlet, one hundred and thirty feet per minute, section area, fifty-six square feet. This mine emits fire-damp. I visited this mine October 11 and found it in good condition.

Fifty-six persons are employed.

Sandy Creek, Nos. 1 and 2.

These mines are located on the Allegheny Valley railroad in Allegheny county, and are operated by the New York and Cleveland Gas Coal Company. Superintendent, J. W. Doak; mining-boss, Isaac Hall.

No. 1 mine is a drift opening, worked on the single-entry system, and ventilated with a furnace. Air measurements taken showed inlet velocity of one hundred and thirty feet per minute, section area, thirty-seven square feet, and outlet, two hundred and ten feet per minute, section area, forty square feet. I visited the mine October 2, and found the ventilation and drainage in good condition.

Twenty-six persons were employed.

No. 2 mine is worked on the single-entry system, and ventilated by natural means. Air measurements could not be taken. I visited the mine October 2, and found the ventilation defective.

Ninety-seven persons were employed.

Republic Mine.

This mine is located on the Baltimore and Ohio railroad in Westmoreland county, and is operated by the Republic Coal Company. Superintendent, James W. Shields; mining-boss, David Ray.

This is a drift opening. At the time of my first visit, ventilation was so defective that I could not take air measurements in any part of the mine. At the time of my second visit, they had constructed a basket furnace, which gave good results. Air measurements taken at the inlet showed a velocity of one hundred and eighty feet per minute, section area, fifty-six square feet, and at the outlet, two hundred and seventy feet per minute, section area, thirty square feet. I visited this mine September 8, October 26, and November 13 and 18.

Eighty-three persons are employed.

Shaner Mine.

This mine is located on the Baltimore and Ohio railroad in Westmoreland county, and is operated by the Shaner Gas Coal Company,

(Limited.) Superintendent, Alexander Moreland; mining-boss, James A. Painter.

This is a drift opening, worked on the single-entry system, and is ventilated with steam generated in a boiler located in the mine. Air measurements taken at the outlet showed a velocity of two hundred and fifty feet per minute, section area, forty-five square feet, and at the outlet, two hundred feet per minute, section area, forty-five square feet. I visited this mine August 3 and November 13, and found it in fair condition.

One hundred and fourteen persons are employed.

Spring Hill Mine.

This mine is located at Wall's station on the Pennsylvania railroad in Allegheny county, and is operated by the Spring Hill Gas Coal Company. Superintendent and mining-boss, William H. Malone.

This is a drift opening, and ventilated with a basket furnace. Air measurements taken at the inlet showed a velocity of two hundred feet per minute, section area, thirty square feet, and at the outlet, seventy feet per minute, section area, thirty-five square feet. I visited this mine September 8 and December 22, and found it in fair condition.

Eighteen persons are employed.

Standard Mines.

These mines are located near Mount Pleasant in Westmoreland county, and are operated by H. C. Frick & Co. Superintendent, Robert Ramsay; mining-boss, George Dawson.

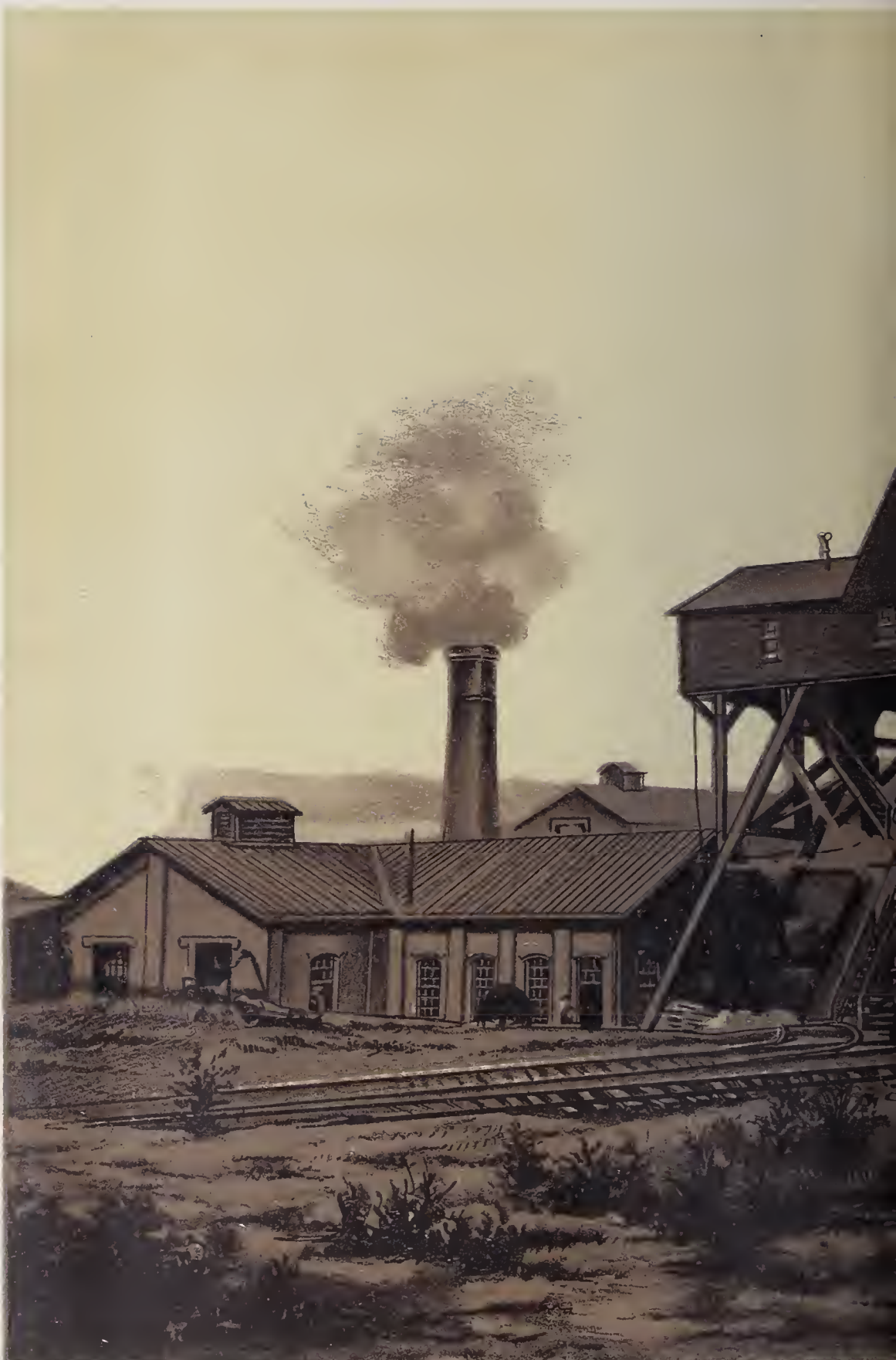
These mines consist of shaft and slope openings, worked on the double-entry system, and ventilated with a fan. Air measurements taken at the face of gas entry showed a velocity of eighty-five feet per minute, section area, thirty-six square feet; near the face of second range, one hundred and thirty feet per minute, section area, forty-two square feet, and at the outlet, five hundred and twenty feet per minute, section area, seventy-two square feet. Another shaft, $12' \times 26'$, is being sunk, together with other improvements, to enlarge the facilities of the mines. I visited these mines September 22, and found the ventilation, the drainage, and the roads in good condition.

Sixty-three persons are employed.

Union Mine.

This mine is located on the South-West Pennsylvania railroad in Westmoreland county, and is operated by McClure & Co. Superintendent, J. B. Henry; mining boss, D. F. Cowan.

This is a drift opening, worked on the single-entry system, and ventilated by natural means. Air measurements taken at the inlet showed a



THE H. C. FRICK COA
AT MOUNT

O., STANDARD MINES.
ASANT, PA.

velocity of one hundred and seventy feet per minute, section area, forty-nine square feet, and at the face of No. 13 butt entry, two hundred and ten feet per minute, section area, forty-two square feet. I visited this mine October 5, and found it in good condition.

Fourteen persons are employed.

United Shaft.

This mine is located on the Sewickley branch of the South-West Pennsylvania railroad, and is operated by the United Coal and Coke Company. Superintendent, F. M. Reynolds; mining-boss, James Eaton.

This is a shaft opening, worked on the double-entry system, and ventilated with a fan, twelve feet in diameter. Air measurements taken at the inlet showed a velocity of three hundred and fifty feet per minute, section area, fifty-six square feet, and at the outlet, three hundred and sixty feet per minute, section area, fifty-six square feet. I visited this mine September 17 and December 30, and found it in fair condition.

One hundred and seven persons are employed.

West Overton Mine.

This mine is located at West Overton in Westmoreland county, and is operated by A. C. Overholt & Co. Superintendent, Frank Overholt; mining-boss, John Garns.

This is a drift opening, and ventilated by natural means. Air measurements taken at the inlet showed a velocity of one hundred and six feet per minute, section area, one hundred and twelve square feet, and at the outlet, one hundred and thirty feet per minute, section area, forty-nine square feet. I visited this mine September 26, and found it in good condition.

Twenty-five persons are employed.

Weinman Mine.

This mine is located near Wilkinsburg in Allegheny county, and is operated by Weinman & Co. Superintendent, Jacob Weinman.

This is a drift opening, and ventilated by natural means. Air measurements taken at the inlet showed a velocity of sixty feet per minute, section area, thirty-nine square feet. I visited this mine October 1, and found it in good condition.

Sixteen persons are employed.

West Newton Mine.

This mine is located on the Baltimore and Ohio railroad in Westmoreland county, and is operated by the West Newton Coal Company. Superintendent, A. W. Osborne; mining-boss, John Smith.

This is a shaft opening, worked on the double entry system, and is extended to the opposite side of the Youghiogheny river, and connected with

a shaft sunk on that side. The mine is ventilated with a furnace. Air measurements taken at the outlet showed a velocity of six hundred and twenty feet per minute, section area, fifty-one square feet; near the face of No. 2 butt entry, one hundred and twenty-eight feet per minute, section area, forty-five square feet; at No. 1 inlet three hundred and twelve feet per minute, section area, thirty-eight square feet, and at No. 2 inlet, one hundred and eight feet per minute, section area, fifty-one square feet. Fire-damp is emitted in small quantities. I visited this mine September 12, and found it in good condition.

Eighty nine persons are employed.

Waverly Mines.

These mines are located on the Baltimore and Ohio railroad at Smithton in Westmoreland county, and are operated by the Waverly Coal and Coke Company. Superintendent, William McCune; mining-boss, James McColligan in No. 1, and Thomas Parkins in No. 2.

These mines are drift openings, worked on the single-entry system, and ventilated with furnaces. In No. 1 mine, air measurements taken at the inlet showed a velocity of three hundred and forty feet per minute, section area, forty-five square feet; at the face of No. 27 butt entry, one hundred and seventy feet per minute, section area, forty-two square feet, and at the outlet, three hundred and twenty feet per minute, section area, eighty square feet.

Fifty-eight persons are employed.

In No. 2 mine, air measurements taken near the face of No. 6 butt entry showed a velocity of one hundred feet per minute, section area, forty-nine square feet; at No. 5 butt entry, one hundred and forty feet per minute, section area, sixty-one square feet, and at the outlet, four hundred and ninety feet per minute, section area, forty-five square feet. I visited these mines September 9 and December 23, and found the ventilation, the drainage, and the roads in good condition.

Sixty-two persons are employed in No. 2 mine.

Westmoreland Coal Company's Mines.

These mines are located in Westmoreland county, and consist of the following, viz: South Side, Westmoreland Shaft, North Side, and Larimer, No. 3. F. Z. Schellenberg, superintendent.

South Side.

This mine is located on the Pennsylvania railroad near Irwin. Mining-bosses, Samuel Wood and James A. Thompson.

This is a drift opening, worked on the double-entry system, and ventilated by means of a large furnace and an exhaust fan, ten feet in diameter.

Air measurements taken at the outlet near the furnace showed a velocity of six hundred and eighty feet per minute, section area, sixty square feet; in swamp entry, four hundred and ninety feet per minute, section area, forty-eight square feet; lower line entry, three hundred and twenty feet per minute, section area, forty-eight square feet; in the dip near the up-cast, eight hundred and ten and six hundred and twenty feet per minute, section area, fifty-six and forty-eight square feet; upper line entry, two hundred and ninety feet per minute, section area, forty-eight square feet; upper No. 5 butt entry, two hundred feet per minute, section area, forty-eight square feet. I visited this mine October 8, and found the ventilation, the drainage, and the roads in good condition.

Three hundred and fifty-one persons are employed.

Westmoreland Shaft.

This mine is located on the Pennsylvania railroad near Manor station. Mining-boss, Charles Walters.

There are three openings, two shafts and one slope, worked on the double-entry system, and ventilated with a fan. Air measurements taken at the inlet showed a velocity of six hundred and forty six feet per minute, section area, forty-eight square feet; at the face of north main entry, two hundred and fifty feet per minute, section area, fifty-six square feet; at No. 11 south main entry, one hundred and thirty feet per minute, section area, fifty-one square feet, and at the outlet, six hundred and eighty feet per minute, section area, eighty-one square feet. Two over-casts were made in the mine this year, as shown by the accompanying drawing; four new boilers have also been added. I visited the mine October 9, and found the ventilation, the drainage, and the roads in good condition.

Three hundred and nine persons are employed.

North Side.

This mine is located at Irwin on the Pennsylvania railroad. Mining-boss, John Williams.

This is a drift opening, ventilated by natural means. Air measurements taken at the inlet showed a velocity of one hundred and thirty feet per minute, section area, thirty-six square feet, and at the outlet, one hundred and twenty feet per minute, section area, twenty-four square feet. I visited this mine October 19, and found the ventilation defective, but the drainage and the roads were in good condition.

Fifty-three persons are employed.

Larimer, No. 3.

This mine is located near Larimer's station on the Pennsylvania railroad. Mining-boss, Arthur Fowler.

This is a drift opening, worked on the double-entry system, and ventilated

by means of a fan and the Sherrill Roper hot-air engine. Air measurements taken at the inlet showed a velocity of seven hundred and thirty feet per minute, section area, forty square feet; between No. 7 and No. 8 butt entries, two hundred feet per minute, section area, fifty square feet, and between No. 1 and No. 2 butt entries, one hundred and sixty feet per minute, section area, fifty-four square feet. The greater part of this mine has been opened during 1885. Other improvements consist of timbering and widening their entries for a double track. I visited this mine October 10, and found the ventilation, the drainage, and the roads in good condition.

One hundred and thirty-eight persons were employed.

Youghiogheny Slope.

This mine is located on the Baltimore and Ohio railroad in Westmoreland county, and is operated by the Youghiogheny Gas Coal Company. Superintendent, Robert H. Lattimore; mining-boss, James Lattimore.

This is a slope opening, worked on the double-entry system, and ventilated with a furnace. Air measurements near the face of the main entry showed a velocity of one hundred and thirty feet per minute, section area, forty-eight square feet; at the inlet, two hundred and eighty feet per minute, section area, forty-eight square feet, and at the outlet, four hundred and seventy feet per minute, section area, forty-eight square feet. During 1885, they sunk an air-shaft. This mine emits fire-damp in small quantities. I visited this mine September 8 and December 13, and found it in fair condition.

Ninety-eight persons were employed.

New York and Westmoreland Coal and Coke Company.

Superintendent, William Wilcox.

This is a shaft opening, located near Manor station, Westmoreland county.

The shaft was commenced March 30, 1885, and has just been completed at the depth of one hundred and ninety-nine feet. Size of shaft, 12×23 feet, and is divided into three compartments, two for cage-ways, and one for pumping and ventilation; the ventilating side having a sectional area of sixty-four square feet, and lined inside from top to bottom with flooring, and made air-tight. The ventilating apparatus consists of a fan, twenty feet in diameter, driven by an engine, 16×30, with a capacity of one hundred thousand cubic feet per minute. The timbers in the shaft are $8''\times12''$, put in sections of twenty and one half feet; the upright timbers, seven feet two inches from center to center; the wall plates, ten feet, center to center, and the buntings, $8''\times12''$, are five feet, center to center. Behind the timbers, the lining is of two-inch plank. The guides, yellow pine, in sections of twenty and one half feet. The shaft is so arranged that each section supports its own weight. The tipple is twenty-four feet wide, and one hundred and fifteen feet long. The hoist-

Section of Strata passed through in sinking the New York and Westmoreland Gas Coal and Coke Co's Shaft at Manor Sta. P.R.R.

Material	Depth	Yds	Ft	In
Soil and Yellow Clay			14	
Blue Sandstone			24	6
Coal Bed	176			6
Black Slate			18	
Limestone			1	6
Fire Clay and Limestone Balls			10	1
Sandstone			1	1
Blue Slate			19	6
Sandstone and Layers of Blue Slate			3	
Sandstone			13	4
Blue Slate			5	10
Coal Bed	1136		3	
Black Limestone			2	
Brown Limestone			9	
Blue Slate			20	
Sandstone			2	6
Blue Slate			8	
Sandstone			8	6
Dark Sandstone			3	2
Black Slate			3	
Blue Slate			1	1
Roof Coal and Slate			5	9
Coal Bed				

ing derrick is fifty-three feet high, the shieve pulleys, eight feet in diameter, and the hoisting-ropes, steel, one and one half inches in diameter. The engines consist of two cylinders, $20'' \times 36''$. Drums, eight feet in diameter, four boilers, $28' \times 40''$ in diameter, set in batteries of two each. The boiler-house is $37' \times 40'$, and the engine-house, $27' \times 40'$, built of brick, and covered with a corrugated iron roof. In addition, a slope is being sunk, about five hundred feet east of the shaft, at an angle of about twenty degrees. Under the able management of the superintendent (late mine inspector of the First district) it is gratifying to say that, during the time that this work was being done, not a man was seriously hurt.

TABLE I.—*Showing location of collieries in the Second Bituminous Mine District.*

NAME OF COLLIERY.	Name of Operator.	Location—County.	Name of Superintendent.	Post Office Address.
Alpsville,	Thomas Hackett & Co.,	Allegheny,	Samuel Smith,	Duncan, Allegheny county.
Alice,	J. M. Schoonmaker,	Westmoreland,	John M. White,	Mt. Pleasant, Westmoreland county.
Amieville,	J. N. Bigley,	do.	Hugh McGinn,	Suterville, Westmoreland county.
Alexandria,	Alexandria Coal Company,	do.	Thomas Donohoe,	Greensburg, Westmoreland county.
Armstroug,	Shaner Gas Coal Company, Limited,	do.	Alexander Moreland,	Yonghiogheny, Westmoreland county.
American,	South-West Coal and Coke Company,	do.		
Arnold,	Arnold Co-operative Coal Company,	do.	William Beane,	Burrell, Westmoreland county.
Blythe,	Y. and A. Coal and Coke Company,	do.	William Carr,	Robbins Station, Westmoreland county.
Buckeye,	A. C. Cochran, Ex.,	do.	A. C. Cochran,	Stauffer, Westmoreland county.
Bessemer,	McClure & Co.,	do.	J. B. Henry,	Scottdale, Westmoreland county.
Coulter & Huff,	Hempfield Coal Company,	do.	A. W. Jones,	Greensburg, Westmoreland county.
Donelly Mines, Nos. 1, 2, & 3,	McClure & Co.,	do.	J. B. Henry,	Scottdale, Westmoreland county.
Duquesne,	J. B. Corey,	Allegheny,	J. B. Corey,	Braddock, Allegheny county
Dillinger,	Dillinger & Co.,	Westmoreland,	D. L. Dillinger,	Ruffsdale, Westmoreland county.
Etter,	John Etter,	Allegheny,	John Etter,	Wilkinsburg, Allegheny county.
Emma,	J. W. Overholt, Agent,	Westmoreland,	J. W. Overholt,	Scottdale, Westmoreland county.
Eureka,	Stoner & Co., Limited,	do.	Charles S. Upstill,	Jacob's Creek, Westmoreland county.
Enterprise,	Dillinger & Rafferty,	do.	W. H. Shannon,	Scottdale, Westmoreland county.
Greensburg,	Greensburg Coal Company,	do.	A. W. Jones,	Greensburg, Westmoreland county.
Hecla,	The Hecla Coke Company, Limited,	do.	Thomas Laird,	South-West, Westmoreland county.
Hazlett Shaft,	McClure & Co.,	do.	J. B. Henry,	Scottdale, Westmoreland county.
Hazlett Slope,	do.	do.	do.	do. do.
Hampton,	Hampton Coal Company,	Allegheny,	Major Lawton,	Wilkinsburg, Allegheny county.
Keystone, No. 12,	W. H. Brown Sons,	do.	A. J. Shanks,	Port Perry, Allegheny county.
Larimer, Nos. 1, 3, and 4,	Westmoreland Coal Company,	Westmoreland,	F. Z. Schellenberg,	Irwin, Westmoreland county.
Lucesco,	Leechburg Coal and Coke Company,	do.	W. H. Wray,	Leechburg, Armstrong county.
M. Graver,	M. Graver & Co.,	Allegheny,	William Fisher,	White Ash, Allegheny county.
M. M. and M.,	M. M. and M. Company,	Westmoreland,	Robert S. Jamison,	Greensburg, Westmoreland county.
Manor Gas Coal Company,	Manor Gas Coal Company,	do.	H. B. Ford,	Manor, Westmoreland county.
Mullin,	Mullin, Strickler & Co.,	do.	W. D. Mullin, Jr.,	Mt. Pleasant, Westmoreland county.
Manor Shaft,	N. Y. and West Gas Coal and Coke Company,	do.	William Wilcox,	Manor Station, Westmoreland county.
Morewood,	Morewood Coke Company, Limited,	do.	Erskine Ramsay,	do. do.
Mayfield,	McClure & Co.,	do.	J. B. Henry,	Scottdale, Westmoreland county.
Number One,	The South-West Coal and Coke Company,	do.	do.	do. do.
Number Two,	do. do.	do.	do.	do. do.
Number Three,	do. do.	do.	do.	do. do.
North Side,	Westmoreland Coal Company,	do.	F. Z. Schellenberg,	Irwin, Westmoreland county.
Ocean, No. 1,	Yonghiogheny River Coal Company,	do.	James Mathews,	Scott Haven, Westmoreland county.
Osceola,	Osceola Coal Company,	Allegheny,	J. H. Dewees,	McKeesport, Allegheny county.
Oak Hill, No. 4,	N. Y. and C. Gas Coal Company,	do.	John McIntosh,	Turtle Creek, Allegheny county.
Plum Creek,	do. do.	do.	J. W. Doak,	Negley, Allegheny county.
Penn Gas Coal Run,	Penn Gas Coal Company,	Westmoreland,	John F. Wolf,	Irwin, Westmoreland county.
Penn Gas, No. 1, shaft,	do. do.	do.	do.	do. do.
Penn Gas, No. 2, shaft,	do. do	do.	do.	do. do.

Penn Gas, No. 4,	do.	do.	do.	do.	do. do.
Penn Gas, No. 3, shaft,	do.	do.	do.	do.	do. do.
Penn Gas Slope,	do.	do.	do.	do.	do. do.
Penn Gas Drift,	do.	do.	do.	do.	do. do.
Port Royal,	Port Royal Coal and Coke Company,		do.	H. C. Marshall,	Fitz Henry, Westmoreland county.
Republic,	Republic Coal Company,		do.	James W. Shields,	Sutersville, Westmoreland county.
Rising Sun,	McClure & Co.,		do.	J. B. Henry,	Scottdale, Westmoreland county.
South Side,	Westmoreland Coal Company,		do.	F. Z. Schellenberg,	Irwin, Westmoreland county.
Standard Shaft,	H. C. Frick Coal Company,		do.	Robert Ramsay,	Mt. Pleasant, Westmoreland county.
Standard Slope,	do.	do.	do.	do.	do. do.
Smithton, No. 1,	Waverly Coal and Coke Company,		do.	William McCune,	Smithton, Westmoreland county.
Smithton, No. 2,	do.	do.	do.	do.	do. do.
Shaner,	Shaner Gas Coal Company, Limited,		do.	W. A. Clement,	Shaner, Westmoreland county.
Star,	A. C. Cochran, Ex.,		do.	A. C. Cochran,	Stauffer, Westmoreland county.
Sandy Creek,	N. Y. and C. Gas Coal Company,		Allegheny,	J. W. Doak,	White Ash, Allegheny county.
Spring Hill,	Alex. Dempster & Ely Boyd,		do.	Ely Boyd,	Walls, Allegheny county.
Union,	McClure & Co.,		Westmoreland,	J. B. Henry,	Scottdale, Westmoreland county.
United,	United Coal and Coke Company,		do.	F. M. Reynolds,	United, Westmoreland county.
Westmoreland Shaft,	Westmoreland Coal Company,		do.	F. Z Schellenberg,	Irwin, Westmoreland county.
West Newton,	West Newton Mines,		do.	A. W. Osborne,	West Newtou, Westmoreland county.
West Overton,	A. C. Overholt & Co.,		do.	B. F. Overholt,	West Overton, Westmoreland county.
Weinman, Nos. 1 and 2,	Weinman & Co.,		Allegheny,	Jacob Weinman,	Wilkinsburg, Allegheny county.
Yough. Slope,	Yough. Slope Gas Coal Company,		Westmoreland,	Robert H. Latimore,	West Newton, Westmoreland county.

TABLE II.—*A statement showing characteristics, number of employés, production, &c., of the respective collieries in the Second Bituminous Mine District, for the year ending 1885.*

NAME OF COLLIERY.	Character of Coal. (Bituminous or Semi-Bituminous.)	Slope, Shaft, or Drift.	Number of pumps.	Number of engines.	Horse power.	Number of boilers.	Number of miners—men.	Number of miners—boys.	Other employees.	Total employees.	Number of mules inside.	Number of mules outside.	Number of locomotives.	Total production of coal in tons.
Arnold,	Bituminous,	Drift,	...	...	...	...	30	4	6	40	3	1	...	21,021
Amieville,	"	"	...	...	...	...	153	8	13	174	9	3	...	75,000
Alpsville,	"	"	...	1	15	1	132	9	16	157	6	2	...	81,390
Alexandria,	"	"	...	...	...	...	63	4	9	76	5	3	...	77,272
Alice,	"	Slope,	...	2	80	4	42	2	10	54	5	2	...	57,600
Blythe,	"	Drift,	...	...	...	...	107	11	11	129	6	1	...	57,000
Buckeye,	"	"	...	...	...	...	45	...	5	50	6	1		
Bessemer,	"	"	1	1	40	1	36	3	9	48	5	3		
Coulter & Huff,	"	Slope,	3	2	50	3	87	4	24	115	10	3	...	120,000
Donnelly, No. 1,	"	Drift,	...	...	...	...	21	1	3	25	2	2		
Donnelly, No. 3,	"	"	...	...	...	...	21	2	3	26	3	2		
Dillinger,	"	"	...	1	30	2	25	3	3	31	3	1	...	38,316
Duquesne,	"	"	...	...	...	...	92	17	22	131	11	3	1	29,984
Eureka,	"	"	...	...	...	...	33	6	7	46	5	3	...	8,424
Emma,	"	"	...	...	...	...	10	...	2	12	1	1	...	22,350
Etter,	"	"	...	...	...	...	10	...	...	10	...	...	...	9,054
Greensburg,	"	"	...	...	...	...	35	5	9	49	3	1	...	47,500
Hampton,	"	"	...	...	...	...	111	20	22	153	16	...	1	69,443
Hecla,	"	Shaft,	2	2	100	6	78	1	38	117	11	2	...	147,349
Hazlett,	"	"	4	2	40	7	36	4	36	76	4	2		
Hazlett,	"	Slope,	1	1	25	2	28	2	6	36	5	2		
Keystone,	"	Drift,	...	...	...	...	50	45	23	118	7	...	...	37,866
Larimer,	"	"	...	...	...	...	108	14	21	143	5	1	...	55,944
Mullen,	"	"	...	...	...	...	16	3	4	23	3	2	...	73,020
Morewood, A,	"	Shaft,	4	2	30	4	73	6	24	103	8	2	...	66,114
Morewood, B,	"	"	3	2	30	4	47	5	13	65	7	1	...	99,040
M. Graver,	"	Drift,	...	...	...	...	96	14	32	142	19	6	1	55,700
M. M. and M.,	"	"	...	...	...	...	75	14	12	101	10	4	...	120,000
Mayfield,	"	"	...	...	...	...	14	1	3	18	2	1		
Mammoth,	"	Slope,	1	1	...	2	50	...	7	57	2	15	...	19,567
Manor Valley,	"	Drift,	...	...	...	...	33	...	8	41	4	1	...	5,000
Manor Shaft,	"	Shaft,	3	2	...	4	6	...	...	6	...	2	...	350
North Side,	"	Drift,	...	...	...	...	62	2	12	76	6	2	...	32,148

Ocean,	"	"			1			2	208	15	19	242	11	2								115,166
Oak Hill, No. 4,	"	"							189	69	33	291	18	1								171,996
Oseeola,	"	"					1	20	68	18	14	100	4	1								43,434
Penn Gas Coal Run,	"	"							198	29	38	265	31	1								141,669
Penn Gas, No. 1,	"	"	Shaft,		2	1		4	211	14	28	253	26	1								169,464
Penn Gas, No 2,	"	"	"		1	1		6	220	14	30	264	24	3								189,376
Penn Gas, No. 4,	"	"	Drift,						189	13	26	228	24	2								109,390
Port Royal,	"	"	Shaft,		1	1	75	4	45		5	50	3									28,904
Plum Creek,	"	"	Drift,						102	24	25	151	19	1								86,137
Rising Sun,	"	"	"		1	1	65	2	16	1	4	21	2	1								23,783
Republic,	"	"	"						63	4	4	71	3									30,000
Smithton, No. 1,	"	"	"			2	20	6	53	5	8	66	5	2								30,000
Smithton, No. 2,	"	"	"			2	20	6	57	5	11	73	5	1								199,514
South Side,	"	"	"		3			2	265	15	56	337	15	4	1							67,994
Sandy Creek,	"	"	"						112	21	41	174	20	5								
Shaner & Armstrong,	"	"	"		1			1	94	4	6	104	4									160,591
Standard,	"	"	Slope and shaft,		5	3	110	9	91	6	27	124	10									8,000
Spring Hill,	"	"	Drift,						17		3	20	3									
Union,	"	"	"						13	3	5	21	2	1								
United,	"	"	Shaft,		2	1	85	4	74	5	13	92	9	5								124,737
Westmoreland,	"	"	"		1	2		12	227	14	38	279	16	1								196,761
West Newton,	"	"	"		1	1	25	4	68	6	7	81	8									61,081
West Overton,	"	"	Drift,						27		4	31	2	2								35,108
Weinman,	"	"	"						15	2	1	18	1									11,915
Yough. Slope,	"	"	Slope,		1	2	40	2	79	7	7	93	5									38,175
No. 2 Mine,	"	"	Drift,					1				31		9								29,188
McClure & Co., consisting of the Bessemer, Donnelly, Nos. 1 and 2, Hazlett, Nos. 1 and 2, Mayfield, Rising Sun, and Union,																						228,658

TABLE III.—*A statement showing the method of ventilation, amount of air discharged, number of openings and headings, and size of inlets and outlets in the respective collieries of the Second Bituminous Mine District.*

NAME OF COLLIERY.	How ventilated.	Diameter of fan in feet.	Size of furnace.	Amount of air discharged per minute.	Number of openings.	Number of headings.	Inlet—size of—square feet.	Outlet—size of—square feet.
Alexandria,	Natural,			14,950	3	11	42	56
Alice,	Furnace,		7 x 10 x 40	19,200	2	4	72	48
Amieville,	"		6 x 5	18,000	4	5	48	60
Alpsville,	Natural,			10,250	5	2	56	42
Armstrong,	Furnace,		7 x 7					
Arnold,	"		4½ x 7 x 10	7,920	3		35	66
American,	Exhaust steam,				2	2	49	49
Blythe,	Furnace,		6 x 4 x 43	12,080	3	8	42	42
Bessemer,	"		3½ x 4 x 28	14,400	2	6	56	48
Buckeye,	Exhaust steam,			11,500	2	2	49	49
Coulter & Huff,	Fan,	6		17,600	3	5	58	44
Donnelly, No. 1,	Natural,			13,400	2	4	56	56
Donnelly, No. 3,	"			14,200	2	2	56	56
Dillinger,	"			11,130	3	3	49	53
Duquesne,	Furnace,			10,000	4	8	40	40
Enterprise, (idle.)								
Eureka,	"		7 x 5½	8,140	2	5	42	37
Etter,	Natural,				3	2	30	30
Emma,	"			8,970	2	2	46	46
Greensburg,	Furnace,		5 x 7	7,130	3	3	48	48
Hecla,	Fan,	18		17,220	2	3	49	42
Hampton,	Furnace,		8 x 8 x 52	25,000	3	10	42	42
Hazlett Shaft,	Natural,			6,400	2	4	28	25
Hazlett Slope,	"			3,420	2	5	37½	28½
Keystone, No. 1,	Furnace,		6 x 4	2,700	2		44	44
Keystone, No. 2,	"		5 x 4	3,400	2		42	42
Larimer,	Fan,	10		21,620	4	3	40	46
Lucesco, (idle.)								
Mullin,	Furnace,		6 x 6	4,725	4	2	56	56
Morewood, A,	Fan,	6		22,960	2	8	56	56
Morewood, B,	"	6		15,320	2		56	56
M. Graver,	Furnace,		6 x 7½ x 24	16,100	5	10	44	44
M. M. and M.,	Natural,			10,580	5	4	58	46
Manor Valley,	"			8,000	2	4	42	42
Mayfield,	"			11,760	2	2	56	56
Mammoth,	"			9,128	2	8	42	56
Manor Shaft,	Fan,	20			1	3		
North Side,	Natural,			4,800	3	1	48	48
Ocean,	Furnace,		8 x 6 x 26	18,600	3	13	48	35
Osceola,	Natural,			6,300	3	4	42	42
Oak Hill,	Furnace,		6 x 8 x 25	37,640	4	4	42	76
Penn Gas, No. 1, Shaft,	Fan,	12		31,360	3	9	39	49
Penn Gas, No. 2, Shaft,	"	18		39,200	3	19	64	40
Penn Gas, No. 4,	Furnace,		56 ft. F. B.	28,800	4	13	36	72
Penn Gas Coal Run,	"		48 ft. F. B.	30,400	6	16	46	45
Port Royal,	Exhaust steam,			7,280	2	6	54	36
Plum Creek,	Natural,			16,875	7	20	56	56
Rising Sun,	"			3,100	3	2	56	48
Republic,	Basket,			10,080	2	2	56	30
Smithton, No 1,	Furnace,		7 x 10 x 20	24,960	3	12	64	49
Smithton, No. 2,	"		7½ x 8 x 15	22,960	3	2	36	56
South Side,	Fan and furnace,	10	10 x 25	116,442	3	25	40	60
Spring Hill,	Basket,			5,040	3	2	36	40
Sandy Creek,	Furnace,		6 x 8 x 25	11,040	8	4	37	40
South-West, (idle.)								
Standard,	Fan,	6		43,200	2		48	72
Shaner,	Basket,			13,920	4	8	47	42
Star, (idle.)								
Union,	Natural,			12,040	2	2	56	56
United,	Fan,	12		21,040	2	26	56	56
Westmoreland,	"	12		45,522	3	22	48	81
West Overton,	Natural,			3,150	3	2	49	42
West Newton,	Furnace,			22,080	2	4	42	48
Weinman,	Natural,			2,090	4	2	38	38
Yough. Slope,	Furnace,		6 x 8 x 22	18,500	3	5	48	48

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	NOVEMBER—1884.						DECEMBER—1884.					
	Velocity of air current per minute at inlet	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Alpsville,	...	...	...	...	...	...	...	...	...	...	...	...
American,	...	...	...	...	...	...	...	...	...	...	...	...
Alice,	195	16,380	285	15,960	290	16,740	230	24,840	170	9,520	440	28,050
Amieville,	160	7,680	120	5,760	130	6,240	...	...	...	...	...	...
	130	6,240	140	6,720	120	5,760						
Armstrong,	...	...	...	...	...	...	...	...	...	...	...	...
Arnold,	430	12,900	380	13,300	260	15,600	380	11,800	330	11,550	210	13,860
Alexandria,	150	13,950	...	...	170	6,120	125	11,550	...	...	150	10,831
					160	8,640						
Blythe,	350	14,700	340	14,280	370	15,540	350	14,700	340	14,200	360	15,120
Bessemer,	130	5,460	60	3,360	180	4,800	180	8,640	70	3,360	150	7,200
Buckeye,	300	14,700	180	8,820	180	6,300	...	...	...	...	...	...
					170	8,687						
Bagdad,	...	...	...	...	...	...	100	8,000	80	6,400	120	9,600
Coulter & Huff,	420	23,520	...	...	650	23,400	390	21,840	...	...	600	21,600
Duquesne,	...	...	...	...	...	...	...	...	...	...	...	...
Donnelly, No. 1,												
Donnelly, No. 2,	...	5,000	...	4,700	...	4,800	...	5,000	...	4,700	...	4,500
Donnelly, No. 3,												
Dillenger,	...	...	...	...	...	...	...	...	...	...	...	...
Etter,	...	...	...	...	...	...	...	...	...	...	...	...
Emma,	...	...	...	...	...	...	...	...	...	...	...	...
Eureka,	...	...	...	...	...	...	...	...	...	...	...	...
Fairbanks,	145	8,250	175	7,875	230	10,350	180	9,000	195	8,775	260	11,700
	45	1,890	120	6,720	...	...	60	2,520	150	8,400		
Greensburg,	200	9,600	...	...	210	10,290	230	11,040	190	9,120	240	11,760
Hampton,	290	12,180	270	10,800	300	12,000	310	13,020	210	8,400	330	13,200
Hecla,	307	15,043	150	7,350	250	10,500	340	16,660	...	...	300	12,600
			142	5,112								
Hazlett Shaft,	...	...	...	...	...	...	...	...	...	...	...	...
Hazlett Slope,	102	4,890	200	9,600	200	9,600	220	9,560	...	...	220	9,560
Isabella,	...	...	...	...	...	...	...	...	...	...	...	...
Keystone,	...	...	...	...	...	...	...	...	...	...	...	...
Loyal Hanna,	470	23,030	140	6,860	210	10,290	450	22,050	140	6,860	310	22,400
							120	9,240				
Leechburg, No. 3,	220	10,560	180	8,640	200	9,600	200	9,600	120	5,760	190	9,120
							...	...	80	3,840		
Latrobe Coal Works,	120	8,600	110	5,390	140	6,860	130	9,360	110	5,390	140	6,860
Larimer, No. 3,	810	32,400	120	4,500	410	18,860	600	24,000	190	6,840	...	29,906
	120	5,520	510	18,360	210	9,660	120	5,520	325	11,700		
Mullin,	60	5,780	90	5,040	100	6,300	75	4,725	150	7,400	75	4,725
Millwood,	500	25,000	300	12,000	480	19,200	600	30,000	350	17,500	700	23,000
Monastery,	510	183,607	260	9,360	295	18,585	...	...	...	...	...	...
Morewood, A,	264	11,784	245	13,750	450	25,200	250	14,000	180	10,136	338	18,928
									102	5,712		
Morewood, B,	...	...	...	...	...	...	...	...	...	...	...	...
M. Graver,	...	16,888	...	...	400	18,000	...	18,000	...	...	380	17,100
Manor Valley,	...	...	...	...	...	...	...	...	...	...	...	...
M. M. and M.,	...	...	...	...	...	...	...	...	...	...	...	...
Mayfield,	...	2,000	...	1,800	...	1,900	...	...	...	...	...	...
M. Saxman,	150	6,300	140	5,880	180	7,560	200	8,400	180	7,560	180	7,560
Mammoth,	...	...	...	...	...	...	...	...	...	...	...	...
North Side,	...	5,258	...	5,019	...	4,950	...	5,160	...	4,830	...	4,733
Ocean, No. 1,	...	19,750	...	...	...	20,100	...	19,780	...	...	...	20,300
Osceola,	...	...	...	...	...	...	...	31,650	...	...	...	31,650
Oak Hill, No. 4,	180	16,800	168	25,950	580	26,650	145	6,090	156	6,952	560	25,300
							165	6,930	170	7,140		
Penn Gas, No. 1, Shaft,	...	26,460	450	22,050	500	24,500	...	29,400	560	26,880	600	29,400
Penn Gas, No. 2, Shaft,	300	19,240	650	23,400	1,200	48,000	300	19,200	640	23,040	1,250	50,000
	380	19,000	400	16,800	...	...	400	20,000	400	16,800		
Penn Gas, No. 4,	...	28,800	300	13,500	400	28,000	...	...	...	...	...	...
			280	12,880								
Penn Gas Coal Run,	...	26,600	170	7,650	700	26,600	...	28,500	360	25,020	750	28,500
			320	13,440								
Port Royal,	...	...	...	...	...	...	...	...	...	...	...	...

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	NOVEMBER—1884.						DECEMBER—1884.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Plum Creek,	310	17,719	170	8,160	305	17,157	330	18,562	180	8,640	320	18,000
Pgh. and Kiskiminitas,	. . .	. . . .	. . .	. . . .	. . .	. . . .	90	7,200	60	4,800	120	9,600
Rising Sun,	150	4,500	50	2,800	100	4,800	80	3,360	60	3,360	100	4,800
Roaring Run, No. 2,	360	17,280	350	16,800	375	18,000	350	16,800	340	16,320	350	16,800
Republic,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Smithton, No. 1,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Smithton, No. 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
South Side,	. . .	49,500	367	15,575	750	45,000	. . .	48,180	. . .	31,950	. . .	43,800
		73,144	380	17,100	. . .	66,495	. . .	70,603	. . .	67,394	. . .	64,185
South-West,	60	3,360	50	2,800	65	3,640	55	3,080	45	2,520	50	2,800
St. Clair,	320	12,800	210	12,600	460	13,800	270	10,800	160	10,080	220	11,000
Spring Hill,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Sandy Creek,	360	17,280	210	10,080	150	7,200	270	12,960	150	7,200	100	4,800
Standard Shaft,	360	17,280	340	16,320	630	45,360	310	15,190	. . .	. . . .	. . .	. . . .
Standard Slope,	. . .	. . . .	. . .	. . . .	. . .	. . . .	300	14,400	500	28,000	620	44,640
Shaner,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Union,	800	44,800	800	44,800	900	50,400	90	5,040	80	4,480	90	5,040
United,	380	21,280	195	10,905	440	24,640	490	27,440	250	14,000	500	28,000
Westmoreland Shaft,	202	10,908	226	10,170	469	37,989	211	11,394	206	9,888	420	34,020
	225	11,425	240	10,800	. . .	. . . .	206	10,404	210	9,450		
West Newton,	200	6,000	190	7,980	400	16,000	200	6,000	190	7,980	400	16,000
									160	6,720		
West Overton,	. . .	. . . .	. . .	. . . .	. . .	. . . .	135	6,615	380	18,240	87	8,402
Weinman,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Waverly, No. 1,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Waverly, No. 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Yough. Slope,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	9,700	. . .	4,900	. . .	18,000

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

Name of Colliery.	January.						February.						March.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Alpsville,	. . .	. . .	. . .	. . .	. . .	. . .	310	13,150	310	14,240	420	19,761	310	13,150	310	14,240	420	19,760
American,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Alice,	360	30,240	380	21,280	560	35,280	245	28,980	355	19,880	586	36,918	. . .	28,000	. . .	20,000	. . .	38,000
Amieville,	120	5,760	130	3,240	340	15,320	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
	260	9,600	170	8,160														
Armstrong,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Arnold,	420	12,600	380	13,300	210	13,860	360	12,600	370	12,950	220	14,520	280	11,760	360	10,500	200	13,200
Alexandria,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Blythe,	350	14,700	340	14,280	360	15,120	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Bessemer,	160	76,800	75	3,600	110	5,280	280	13,440	90	4,320	180	8,640	130	5,460	60	2,880	180	8,640
Buckeye,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Bagdad,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Coulter & Huff,	. . .	. . .	. . .	. . .	. . .	. . .	420	23,520	. . .	. . .	625	22,500	425	23,800	. . .	. . .	640	23,040
Duquesne,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Donnelly, No. 1,																		
Donnelly, No. 2,	. . .	5,000	. . .	4,750	. . .	4,750	. . .	5,000	. . .	4,500	. . .	4,750	300	16,800	. . .	. . .	124	6,944
Donnelly, No. 3,																		
Dillenger,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	200	8,400	. . .	. . .	288	6,128
Etter,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Emma,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Eureka,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Fairbanks,	155	7,750	172	7,650	225	10,125	165	8,250	175	7,875	235	10,575	175	8,750	180	8,100	240	10,800
	45	1,890	125	5,625	. . .	. . .	45	1,890	180	7,280	. . .	. . .	45	1,890	130	7,280		
Greensburg,	260	12,480	250	12,000	300	14,700	220	10,760	210	10,080	270	13,030	270	12,960	250	12,000	310	15,190
Hampton,	310	13,020	250	10,000	350	14,000	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Hecla,	330	16,170	. . .	. . .	240	10,080	320	10,780	140	6,860	290	12,180	340	16,660	. . .	. . .	300	12,600
									110	3,960								
Hazlett Shaft,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Hazlett Slope,	220	10,560	220	10,560	320	15,300	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Isabella,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Keystone,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Loyal Hanna,	410	31,160	140	6,860	310	23,055	300	27,335	. . .	. . .	205	10,045	. . .	. . .	. . .	. . .	. . .	. . .
Leechburg, No. 3,	220	10,560	125	6,000	200	9,600	235	11,280	120	5,660	150	7,350	220	10,560	100	4,800	210	10,800
															80	3,800		
Latrobe Coal Works,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	120	8,640	110	5,390	130	6,370
Larimer, No. 3,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Mullin,	100	6,300	120	6,720	100	6,300	. . .	. . .	. . .	. . .	. . .	. . .	150	9,450	86	4,816	67	4,221
Millwood,	600	30,000	600	30,000	600	24,000	560	28,000	. . .	. . .	620	24,800	120	36,000	400	16,000	640	25,600
Monastery,	395	23,985	335	12,060	675	24,300	. . .	. . .	. . .	. . .	. . .	. . .	200	12,600	100	3,600	400	14,400
Morewood, A,	220	12,320	232	11,992	330	18,480	335	18,760	230	12,880	450	25,200	. . .	. . .	. . .	. . .	. . .	. . .
									104	5,824								
Morewood, B,	110	6,160	170	8,500	180	10,080	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
M. Graver,	135	15,225	. . .	. . .	400	18,000	145	19,575	. . .	. . .	410	18,605	130	6,050	. . .	. . .	390	17,550
Manor Valley,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
M. M. and M.,	200	9,000	150	9,000	200	12,000	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Mayfield,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	250	14,000	. . .	. . .	220	13,320
M. Saxman,	160	6,720	140	6,500	170	7,141	140	5,880	150	6,300	180	7,560	160	6,720	180	7,560	200	8,400
Mammoth,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
North Side,	. . .	5,093	. . .	4,584	. . .	4,630	. . .	5,093	. . .	4,860	. . .	4,630	. . .	3,720	. . .	3,600	. . .	3,600
Ocean, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Osceola,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Oak Hill, No. 4,	165	17,220	170	20,392	560	25,300	260	11,440	320	14,080	360	14,760	280	13,400	210	9,240	310	13,640
							160	6,720	165	25,224	570	26,220	164	6,888	155	6,510	530	24,330
							138	5,796	. . .	. . .	. . .	. . .	175	7,350	150	6,300		
													100	4,200	162	6,804		
Penn Gas, No. 1, Shaft,	. . .	26,950	460	22,080	600	29,400	. . .	27,930	470	22,560	600	29,400	. . .	30,380	450	21,600	620	30,380
Penn Gas, No. 2, Shaft,	250	16,000	600	21,600	1,250	50,000	240	15,360	670	24,120	1,320	52,800	400	20,000	600	21,600	1,200	43,000
	450	22,500	400	17,200	. . .	. . .	500	25,000	405	17,200	. . .	. . .	210	16,640	420	18,060		
Penn Gas, No. 4,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Penn Gas Coal Run,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	26,600	130	8,100	700	26,610
													. . .	. . .	120	13,440		
Port Royal,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

Plum Creek,																						
Pittsburgh and Kiskiminitas,																						
Rising Sun,																						
Roaring Run, No. 2,																						
Republic,																						
Smithton, No. 1,																						
Smithton, No. 2,																						
South Side,																						
South-West,																						
St. Clair,																						
Spring Hill,																						
Sandy Creek,																						
Standard Shaft,																						
Standard Slope,																						
Shaner,																						
Union,																						
United,																						
Westmoreland Shaft,																						
West Newton,																						
West Overton,																						
Weinman,																						
Waverly, No. 1,																						
Waverly, No. 2,																						
Yough. Slope,																						

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	APRIL.						MAY.						JUNE.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Alpsville,	141	6,780	150	6,660	214	8,571												
American,																		
Alice,													240	27,400	350	20,000	580	36,540
Amieville,																		
Armstrong,																		
Arnold,	310	12,400	340	11,900	220	14,520	340	11,900	350	12,250	240	14,529						
Alexandria,	118	9,635	92	4,508	240	10,800	80	6,160	80	3,600	360	20,165	105	7,560	100	4,800	185	7,770
			88	3,960														
Blythe,																		
Bessemer,	200	9,600	80	4,480	200	9,600	210	10,080	90	5,040	250	12,480						
Buckeye,																		
Bagdad,	80	6,400	70	5,600	120	9,600												
Coulter & Huff,	390	24,570			400	16,800	390	24,570			430	18,060						
Duquesne,																		
Donnelly, No. 1,	280	15,680	55	3,080	130	7,280	260	14,560	60	3,360	120	6,720						
Donnelly, No. 2,	135	7,560	50	2,800	100	5,600	200	11,200	60	3,360	120	6,720						
Donnelly, No. 3,	80	4,480			90	5,040	180	10,080	60	3,360	120	6,720						
Dillinger,																		
Etter,																		
Emma,																		
Eureka,																		
Fairbanks,	170	8,500	185	8,325	240	10,800	150	7,500	165	7,425	225	10,125						
	40	1,680					50	2,300	120	6,720								
Greensburg,	320	15,360	280	12,440	340	16,660												
Hampton,																		
Hecla,	280	13,720	80	3,920	240	10,080	300	14,700	140	6,860	250	10,500	550	26,950	190	10,260	460	19,320
			70	2,520					110	3,960					180	7,560		
Hazlett Shaft,	500	21,000			300	25,200												
Hazlett Slope,	350	14,700			200	16,800												
Isabella,	385	16,170			390	16,380	370	15,540	160	6,720	375	15,750	365	15,330	370	15,540	145	6,090

Keystone,																		
Loyal Hanna,	305	14,945	140	6,860	210	10,290	300	27,335	140	5,860	205	20,995	300	28,140	150	7,350	800	22,040
					90	7,200												
Leechburg, No. 3,	200	9,600	120	5,160	180	8,640												
Latrobe Coal Works,	110	7,920	100	4,900	120	5,880							110	5,390	90	4,410	100	4,900
Larimer, No. 3,														4,000				3,800
Mullin,	60	3,780			132	8,416	43	2,709			55	3,465						
Millwood,	640	32,000	500	20,000	540	21,600	180	9,000	250	10,000	240	9,600	300	15,000	200	8,000	260	10,400
Monastery,							500	18,000	250	9,000	295	18,585	395	24,885			675	24,300
Morewood, A,	444	24,860	235	18,160	377	21,112	410	22,960	173	6,328	471	26,376	370	20,720	142	7,920	455	25,480
									121	6,776					150	14,000		
Morewood, B,																		
M. Graver,		18,000			380	17,100	130	17,550			400	18,000		15,450			410	18,450
Manor Valley,																		
M. M. and M.,																		
Mayfield,																		
M. Saxman,	200	8,400	180	7,560	220	9,240	200	8,400	175	7,350	180	7,560	160	6,720	140	5,880	200	8,400
Mammoth,																		
North Side,								5,160		4,830		4,738						
Ocean, No. 1,																		
Osceola,	190	9,120	165	7,260	240	10,560							410	16,810				18,480
Oak Hill, No. 4,								19,320			580	26,680	160	16,648	170	18,984	520	23,920
Penn Gas, No. 1, Shaft,								26,460	520	24,960	540	26,460		30,625	520	24,960	625	30,625
Penn Gas, No. 2, Shaft,							400	20,000	318	13,356	1,015	40,600	220	14,080	380	15,960	940	37,600
							230	14,720	523	18,828			400	20,000	420	15,120		
Penn Gas, No. 4,								26,640	300	13,500	370	26,640		26,640	280	13,440	370	26,640
									220	10,120					280	14,000		
Penn Gas Coal Run,								27,740	220	10,500	730	27,740			250	10,500	800	30,400
									250	10,500					340	13,600		
Port Royal,																		
Plum Creek,							810	17,718	170	8,160	300	16,875	330	18,562	175	8,400	325	18,282
Pittsburgh and Kiskiminitas,	100	8,000	70	5,600	120	9,600												
Rising Sun,	130	6,240	70	3,360	180	5,400	100	4,800	60	3,360	160	4,800						
Roaring Run, No. 2,	360	17,280	380	17,240	360	17,280	320	15,360	310	14,680	320	15,360						
Republic,																		
Smithton, No. 1,																		
Smithton, No. 2,																		
South Side,								48,180		46,090		43,800		36,180		38,190		40,200
								65,000		64,020		64,020		56,856		60,014		63,173
South-West,																		
St. Clair,	230	9,200	150	8,000	200	10,000												
Spring Hill,																		
Sandy Creek,							270	12,960	170	8,160	120	5,760	260	12,480	150	7,200		
Standard Shaft,							270	12,960	170	8,160	120	5,760						
Standard Slope,							300	12,740	450	25,000	600	43,200						
Shaner,																		
Union,	340	11,900	210	10,290	260	14,560	356	12,460	225	11,025	270	15,120	340	11,900	220	10,780	260	14,560
United,	440	24,640	180	9,980	455	25,480							239	31,032	352	19,712	352	19,712
Westmoreland Shaft,								9,120		8,802		37,179	243	11,664	220	11,880	534	43,254
								9,840		9,588			241	11,568	214	10,914		
West Newton,							200	6,000	190	7,980	410	16,400	200	6,000	190	7,980	400	16,000
									170	7,140					150	6,300		

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

Name of Colliery.	April.						May.						June.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
West Overton,																		
Wellman,																		
Waverly, No. 1,	310	15,190	185	9,065	360	21,040	290	14,210	180	8,820	360	23,040	280	13,440	220	10,780	420	26,880
Waverly, No. 2,	320	17,920	210	12,600	400	22,400	320	17,920	210	12,600	425	23,800	320	17,920	210	12,600	400	22,400
Yough. Slope,																		

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

Name of Colliery.	July.						August.						September.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Alpsville,							123	13,530	100	3,300	200	16,500	123	13,530	100	3,300	200	16,500
American,																		
Alice,							450	33,600	110	14,150	400	22,000						
Amieville,													400	19,200	300	14,400	250	16,250
Armstrong,																		
Arnold,	350	12,250	320	11,200	210	13,860							200	7,000	180	6,300	120	7,920
Alexandria,							225	10,750	195	9,320	300	14,400	180	9,900	80	3,360	200	8,000
Blythe,																		
Bessemer,																		
Buckeye,																		
Bagdad,																		
Coulter & Huff,																		
Duquesne,	180	7,200	115	4,600	56	2,240												
Donnelly, No. 1,	200	11,200	60	5,360	188	10,528							140	5,600	100	4,000	100	4,400
Donnelly, No. 2,	180	10,800	58	3,248	175	8,800	300	16,800	80	4,480	180	10,080	310	17,360	135	7,560	270	15,120
Donnelly, No. 3,	150	8,400	50	2,800	165	9,240	150	8,400			180	10,080	300	16,800	130	7,280	270	15,120
Dillinger,																		
Etter,																		
Emma,																		
Eureka,																		
Greensburg,																		
Hampton,																		
Hecla,	450	22,050	80	4,320	370	15,540	510	24,990	125	13,440	420	17,640	600	25,200			580	24,360
			100	4,900									530	25,970	160	16,080	470	19,740
Hazlett Shaft,													160	6,000			120	3,120
Hazlett Slope,													244	6,125			300	6,400
Isabella,																		
Keystone,							180	7,920			60	2,700						
Loyal Hanna,	300	27,335	155	7,595	300	20,995												
Latrobe Coal Works,	120	5,880	100	4,900	110	7,920												

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Leechburg, No. 3,																		
Larimer, No. 3,	338	16,224	232	15,528	520	43,740	720	28,800	315	26,460	260	21,840	770	31,160	265	23,200	375	33,000
	360	17,280	332	16,932														
Mullin,							50	3,150			34	2,142	34	2,142			40	4,725
Millwood,	220	11,005	200	8,000	190	7,600												
Monastery,	310	19,530	60	2,160	530	19,080												
Morewood, A,							303	16,968	165	18,424	400	22,922	236	13,216	166	18,900	410	22,960
Morewood, B,																		
M. Graver,	140	25,200			380	17,290	130	5,850	100	4,500	400	18,000	95	4,275	22	275	380	16,100
Manor Valley,																		
M. M. and M.,																		
Mayfield,																		
M. Saxman,	175	7,350	180	7,560	250	10,500												
Mammoth,																		
North Side,																		
Ocean, No. 1,																		
Osceola,	260	10,660			160	7,040	270	11,070			145	12,760	175	8,400	150	7,200	340	13,940
					120	5,280												
Oak Hill, No. 4,	160	15,750	164	6,880	500	23,000	121	15,960	150	12,600	500	23,000	133	16,620	155	13,020	730	33,580
			170	7,140														
Penn Gas, No. 1, Shaft,								31,360	570	24,480	640	31,360		30,870	525	25,200	630	30,870
Penn Gas, No. 2, Shaft,							275	31,280	380	28,640	900	36,000	540	29,800	385	29,000	980	33,200
Penn Gas, No. 4,								26,640	255	21,650	370	26,640		28,800	260	21,150	400	28,800
Penn Gas Coal Run,								28,500	277	32,780	750	28,500		30,400	287	37,020	800	30,400
Port Royal,																		
Plum Creek,	310	17,439	170	8,160	300	16,875	310	17,437	175	8,400	300	16,875	310	17,437	180	8,880	300	16,875
Pittsburgh and Kiskiminitas,																		
Rising Sun,																		
Roaring Run, No. 2,																		
Republic,																		

Smithton, No. 1,													280	14,210	180	8,820	400	25,600
Smithton, No. 2,													320	17,920	210	12,600	425	23,800
South Side,		33,200		35,055		36,900		120,120		114,660		102,200		120,615		99,336		109,650
		60,994		63,432		66,770												
South-West,																		
St. Clair,																		
Spring Hill,																		
Sandy Creek,	260	12,480	130	6,240	100	4,800	300	14,400	160	7,680	90	4,320	300	14,400	140	6,720	100	4,800
Standard Shaft,							270	25,910	460	25,760	590	42,480	300	28,800	500	28,000	610	43,920
Standard Slope,																		
Shaner,																		
Union,													310	17,360	100	6,160	210	11,760
United,	239	21,032	352	19,712	352	19,712	239	21,040	239	21,040	352	19,912	239	21,040	239	21,010	352	19,720
Westmoreland Shaft,	140	5,600	125	4,500	260	13,680	323	30,960	265	27,666	562	45,552	302	28,992	315	27,720	520	42,120
	190	8,740	121	4,840														
West Newton,	180	5,400	180	7,560	400	16,000							300	12,600	165	13,860	490	22,560
West Overton,																		
Weinman,																		
Waverly, No. 1,	270	13,230	170	8,830	360	21,230												
Waverly, No. 2,	300	16,800	190	11,400	380	23,040												
Yough. Slope,														10,450		4,920		17,840

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	OCTOBER.						NOVEMBER.						DECEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Alpsville,	227	23,230	250	10,560	300	10,250	600	13,200	100	3,300	400	8,000	180	7,964	136	5,984	184	8,116
American,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Alice,	195	23,480	285	14,705	400	19,200	330	22,760	345	17,105	385	18,480	310	22,320	330	20,790	510	26,560
Amieville,	300	14,400	350	15,500	300	18,000	300	14,000	. . .	. . .	. . .	. . .	300	14,000	. . .	. . .	. . .	. . .
Armstrong,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Arnold,	220	7,700	200	7,000	130	8,580	320	11,200	310	10,850	220	14,520	290	10,150	270	9,450	170	11,220
Alexandria,	. . .	. . .	. . .	. . .	. . .	. . .	210	11,300	70	2,940	260	14,040	230	12,880	150	8,400	380	21,280
Blythe,	. . .	. . .	. . .	. . .	. . .	. . .	250	12,000	. . .	. . .	. . .	. . .	300	12,600	. . .	. . .	. . .	. . .
Bessemer,	160	8,960	60	3,360	300	14,400	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Buckeye,	. . .	. . .	. . .	. . .	. . .	. . .	150	7,350	190	9,975	240	11,520	220	11,550	. . .	. . .	250	13,500
Bagdad,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Coulter & Hnff,	230	13,455	170	8,160	400	17,600	235	13,740	165	7,920	350	15,400	230	13,455	170	8,160	400	17,600
Duquesne,	180	7,200	100	4,000	85	3,400	. . .	. . .	. . .	. . .	. . .	. . .	350	3,500	115	4,600	300	10,500
Donnelly, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .												
Donnelly, No. 2,	295	16,420	155	8,680	275	15,400	290	16,240	120	6,720	270	14,880	320	16,340	140	7,840	310	17,360
Donnelly, No. 3,	. . .	. . .	. . .	. . .	. . .	. . .												
Dillinger,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Etter,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	50	1,750	. . .	. . .	. . .	. . .
Emma,	. . .	. . .	. . .	. . .	. . .	. . .	90	5,040	70	3,780	. . .	. . .	90	5,040	70	3,780	. . .	. . .
Eureka,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	240	12,240	. . .	. . .	. . .	. . .
Fairbank,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Greensburg,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	120	5,760	120	5,760	140	6,860
Hampton,	580	24,360	. . .	. . .	600	25,200	400	16,800	300	12,000	580	24,360	540	25,920	400	16,000	560	23,520
Hecla,	400	19,600	110	11,355	320	13,440	500	24,500	105	10,400	470	19,740	550	26,950	140	14,800	480	20,160
Hazlett Shaft,	160	6,000	. . .	. . .	120	3,420	210	6,300	. . .	. . .	200	8,400	. . .	. . .	. . .	. . .	. . .	. . .
Hazlett Slope,	245	6,130	. . .	. . .	300	6,400	230	5,750	. . .	. . .	70	1,960	. . .	. . .	. . .	. . .	. . .	. . .
Isabella,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Keystone,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	3,000	. . .	. . .	. . .	4,500	. . .	3,000	. . .	. . .	. . .	2,300
Loyal Hanna,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Leechburg, No. 3,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Latrobe Coal Works,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

Larimer, No. 8,	750	80,000	163	24,020	470	21,620	710	28,400	153	14,168	147	13,570	720	28,800	150	13,200	185	11,440
Mullin,	75	4,725			50	3,150							300	16,200				
Millwood,																		
Monastery,																		
Morewood, A,							340	19,040	260	14,000	608	24,368	370	20,720	148	16,633	363	29,956
Morewood, B,							237	13,272	180	10,080	270	15,320	271	15,176	255	14,280	320	18,088
M. Graver,	110	4,950	270	11,610	430	19,350	100	4,500	50	510	400	18,000	120	5,400	50	520	410	18,200
Manor Valley,								4,000				3,000	200	9,800			192	9,216
M. M. and M.,							136	23,246					100	13,970				
Mayfield,							280	15,680	110	6,160	260	14,560	310	17,660	140	7,840	300	16,800
M. Saxman,																		
Mammoth,																		
North Side,	110	5,280	103	4,944	100	4,800	230	11,040	110	7,920	200	14,400	180	7,560			140	7,840
Ocean, No. 1,							290	27,550					170	8,160	130	9,360	175	12,600
Osceola,	120	10,560	160	7,040	205	17,290	215	19,380			480	19,690	300	28,800				
Oak Hill, No. 4,	200	21,840	155	25,956	1,020	37,640	164	23,760	152	25,620	515	38,100	280	11,760	280	13,460	440	18,040
Penn Gas, No. 1, Shaft,								29,880	520	24,960	590	28,910	193	23,340	156	13,104	485	36,900
Penn Gas, No 2, Shaft,							295	32,320	435	36,120	1,050	42,000		29,890	545	26,160	590	28,910
Penn Gas, No. 4,									230	10,350	410	29,500	530	28,480	715	29,520	970	38,000
Penn Gas Coal Run,	320	27,440	290	28,130	770	36,190	345	30,660	235	22,810	750	35,250	440	28,800	210	18,480	400	28,800
Port Royal,							162	11,834	200	11,200	175	8,575	440	22,080	275	26,720	760	35,720
Plum Creek,	305	17,100	170	8,160	290	16,875	290	16,315	145	6,960	300	16,875	310	17,437	170	8,160	280	15,750
Pittsburgh and Kiskiminitas,																		
Rising Sun,																		
Roaring Run, No. 2,																		
Republic,																		
Smithton, No. 1,	310	14,880	190	9,310	390	24,960	290	14,210	180	8,820	400	25,600	320	15,680	190	9,310	400	25,600
Smithton, No. 2,	300	16,800	200	12,000	410	22,960	320	17,920	210	12,600	425	23,800	310	17,360	210	12,600	425	23,800
South Side,		129,620		101,033	724	117,822		126,687	425	100,249	660	115,170		125,779	445	99,642	660	114,345
South-West,																		
St. Clair,																		
Spring Hill,																		
Sandy Creek,	300	14,880			230	11,040	250	12,000			140	6,720	240	11,520			100	4,800
Standard Shaft,	330	31,680	460	25,760	600	43,200	535	25,680	460	25,760	560	40,320	235	22,560	400	22,960	560	40,520
Standard Slope,																		
Shaner,							250	12,000			290	13,920					214	13,268
Union,	230	12,880	115	6,420	215	12,040	210	11,760	100	5,600	190	10,640	280	15,680	120	6,720	270	15,720
United,	238	21,040	238	21,040	238	21,040	506	21,040					253	21,040				
Westmoreland Shaft,	341	32,936	289	31,236	562	45,522	355	34,100	286	29,139	640	51,800	290	27,840	265	26,820	570	46,818
West Newton,	280	11,760	185	15,480	460	22,080	310	13,020	210	8,820	480	23,040	300	12,600	190	15,960	480	23,040
West Overton,							130	6,370	380	18,240	75	3,150	135	6,615	400	19,200	81	3,402
Weinman,	64	2,432			64	2,432	64	2,432					74	2,812				
Waverly, No. 1,																		
Waverly, No. 2,																		
Yough. Slope,						18,600	240	11,520					340	14,320				

LIST OF ACCIDENTS *occurring in the mines of the Second Bituminous Coal District of Pennsylvania for the year ending December 31, 1885.*

Date of accident.	Name of Person Injured.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident.
1884.								
Nov. 13	William Meyers,	40	Single,		Westmoreland Shaft,	Westmoreland,	Nov. 13	Fall of slate; killed.
17	George McSillen,	15	"		Arnold,	"		Bruised by fall of slate.
20	John Devine,	20	"		Coulter & Huff,	"		Injured by fall of slate.
29	William Hunsa,	24	Married,		Standard,	"		Killed by fall of slate.
Dec. 12	Robert Harrison,	46	"	6	Penn Shaft, No. 1,	"	Dec. 17	Fatally injured by mine wagon.
31	Thomas Williams,	30	"		Millwood Shaft,	"		Leg broken by pit wagon.
31	John Brickersliff,	60	"		Osceola,	Allegheny,		Back injured.
1885.								
Jan. 17	Mark Appleby,	19	Single,		Westmoreland Shaft,	Westmoreland,	Jan. 21	Killed by fall of slate.
27	William McClaren,	25	"		Amleville,	"		Back bruised by fall of slate.
29	Jacob Welson,	58	Married,	13	Alpsville,	Allegheny,	Feb. 4	Killed by fall of slate.
Feb. 21	Robert Dawson,	19	Single,		Coulter & Huff,	Westmoreland,		Foot injured; caught between wagons.
Mch. 10	John Bells,	18	"		Roaring Run Mine,	"		Injured head, hand, and one leg; too near a shot fired.
28	Lewis Kruder,	46	Married,	7	Waverly, No. 2,	"	April 1	Killed; struck with post.
April 16	James Butcha,	50	"		"	"		Caught under wagon.
16	James Goodman,	27	"		United Shaft,	"		Burned slightly by explosion of gas.
16	Simon Gramm,	30	"		"	"		"
29	Henry Scott,	44	Single,		M. Graver,	Allegheny,		Bruised by fall of slate.
May 4	Frank Gagen,	61	Married,	2	Waverly, No. 2,	Westmoreland,	May 6	Killed by fall of slate.
27	Israel Wilson,	21	Single,		Yough. Penn Gas, No. 2,	"	June 1	Killed by wagon jumping track.
June 13	John N. Wise,	39	Married,		Coulter & Huff,	"	Oct. 17	Killed by fall of slate.
14	Robert Frost,	21	Single,		Plum Creek,	Allegheny,	21	Killed by fall of slate; died June 19.
15	Joseph Bootsky,	40	"		Bessemer,	Westmoreland,	Sept. 17	Killed by fall of slate and roof coal.
18	Frank Weaver,	24	"		United Shaft,	"	17	Killed by fall of slate.
26	Dennis Tracy,		Married,		Osceola,	Allegheny,		Bruised by fall of slate.
July 2	Thomas McKernan,	53	"		Latrobe Coal Works,	Westmoreland,		Leg broken.
16	James Hamilton,	20	Single,		Oak Hill,	Allegheny,		Back bruised in trying to get between wagons.
28	John Klefzke,	53	"		Osceola,	"	July 29	Killed by fall of roof coal.
Aug. 4	Robert Harper,	21	"		Oak Hill, No. 4,	"	Sept. 3	Killed by fall of slate.
15	Isaac Kennedy,	23	"		"	"		Leg broken by fall of slate.
25	George Weir,	49	Married,	4	Keystone,	"	Aug. 26	Killed by fall of slate.
Sept. 12	William Bradley,	27	Single,		Blythe,	Westmoreland,	Sept. 13	Killed by explosion of gas.
12	James Hamilton,	17	"		"	"		Severely burnt by explosion of gas.
15	John Adams,	60	"		M. M. and M.,	"		Foot bruised by fall of slate.

21	Robert Brieldaluff,	38	Married,		Coal Run,	"				Back severely hurt by fall of roof coal.
22	Michael Madden,	48	"		West Newton Shaft,	"				Leg broken by fall of slate.
26	Valentine Shaner,		"		Penn Gas, No. 4,	"				Back bruised by fall of slate.
Oct. 18	William Drury,	17	Single,		M. M. and M.,	"				Hurt by fall of coal.
21	William Moore,	21	"		Blythe,	"				Back crushed by being caught between roof and wagon.
24	Henry Augustine,	60	Married,		Ocean, No. 1,	"			Oct. 26	Killed instantly by fall of slate.
27	Joseph Hurst,	23	Single,		Penn Shaft, No. 1,	"				Back and hips injured by fall of slate.
Nov. 21	Alexander R. Nori,	17	"		Plum Creek,	Allegheny,				Hurt by being caught between wagon; leg amputated.
Dec. 12	John Hill,				M. Graver,	"				Injured by mine wagon.
14	Henry Bolts,									Ankle dislocated by fall of slate.
15	Daniel Kenny,	58	Married,	5	Westmoreland S. and S.,	Westmoreland,			Dec. 16	Fatally injured by fall of slate.
									1886.	
29	Charles Arle,	36	"	5	Larimer Mine,	"			Jan. 1	Killed by fall of slate.

THIRD DISTRICT.

To the Honorable J. SIMPSON AFRICA, *Secretary of Internal Affairs of Pennsylvania:*

SIR: In compliance with the tenth section of the bituminous mining act approved the 30th day of June last, I herewith submit my report of the inspection of mines of the Third bituminous coal district for the fourteen months ending December 31, 1885.

The mining act of June last made a change in the time of reporting to your department, which includes the months of November and December of 1884, hence a fourteen months' report instead of one for only the year; the tonnage, however, has only been collected for the year.

During the fourteen months, six deaths and ten non-fatal accidents have occurred. Of these, one death and one non-fatal accident happened during the months of November and December, 1884, leaving for the year fourteen casualties. The basis of comparison of accidents to the tonnage will be in relation to the latter number, (14,) and for the year only.

CAUSES OF FATAL AND NON-FATAL ACCIDENTS.

Fatal.

Fall of roof,	3
Fall of coal,	2
Mine wagons,	1
Total,	6

Non-Fatal.

Fall of roof,	4
Fall of coal,	2
Mine wagons,	4
Total,	10
Number of widows caused by fatalities,	4
Number of orphans caused by fatalities.	12

Mining Statistics for the year 1885.

Number of employés employed inside of the mines,	3,080
Number of employés employed outside of the mines,	434
Total number employed,	3,514
Number of mules and horses employed,	274
Number of mines exhausted during the year,	2

Number of mines opened during the year,	2
Number of mines now in the district,	67
Average number of days worked during the year,	184
Average price paid for digging per ton of lump coal, in cents,	60¼
Number of tons of lump coal mined during the year,	1, 121, 398
Number of tons of run of mine coal mined during the year,	1, 608, 647
Number of tons of lump coal mined per fatal accident,	224, 279
Number of tons of run of mine coal mined per fatal accident,	321,729
Number of tons of lump coal mined per non-fatal accident,	112, 139
Number of tons of run of mine coal mined per non-fatal accident,	160, 864
Number of coke ovens in operation during the year,	170

These statistics show that a very favorable decrease in the number of accidents has taken place during the year.

The average tonnage per fatal casualty for the four years next preceding 1885, in this district, was two hundred and ninety-two thousand five hundred and thirty-seven tons, while this year there are three hundred and twenty-one thousand seven hundred and twenty-nine tons mined per fatal accident, and for the non-fatal casualty for the four years prior to this year, the average tonnage was only ninety-four thousand three hundred and ninety-one tons, while it reaches one hundred and sixty thousand eight hundred and sixty-four tons per non-fatal accident this year. These good results will, in all likelihood, be improved upon in the future, owing to the greater efficiency given to mine inspection by the recent mine legislation—but no matter how efficient mine inspection may be, it cannot eliminate entirely mine casualties.

It will be observed that the average number of days worked at the mines during the year was only one hundred and eighty-four. Neither do the present indications give much encouragement to the coal operators. As natural gas is being so extensively used as a fuel, at present, it is having a very injurious effect upon the coal trade of this district.

All of the mines in the district have been inspected frequently during the year, and I found them, with but few exceptions, in a very reasonable, safe, and sanitary condition.

The description of the mines, of fatal accidents, remarks on the new mining act, a circular giving instructions to mine bosses about how to measure air, together with the usual tables, &c., will be found in another part of this report, all of which are respectfully submitted.

I am, yours,

Very respectfully,

Thomas K. Adams,

Inspector.

Mercer, Mercer County, Pa., *January 30, 1886.*

REMARKS ON THE NEW MINING ACT.

The provision which prohibits the employment in the mines of boys under twelve years of age is a commendable one. Although a similar law has been in existence for a number of years, it proved to be inoperative, owing to no public official being specially required to enforce it. I have always made it a part of my duty, however, when inspecting the mines, to urge upon the officials not to employ boys under twelve years, and, as a result of this, I have not been required to put many of them out of the mines in my district who were under the lawful age, since that duty was put upon the inspectors. Had we a compulsory educational law, compelling the parents of such children to have them attend school, regularly, the objects aimed at by having such a provision would be more fully realized. Some parties complain because of the hardships that the enforcement of such a provision is going to create among the widows who have been left with large families. It was ever thus. It is not the widows nor the orphans that are the complainants' chief concern, but rather their zealous worship of the "almighty dollar." Of the boys who had to leave the mines in my district, but few, if any, were the "destitute widows'" sons. In nearly every instance, the boy who had to leave the mine was the son of a live, robust man. The man who can support his child until he is nine or ten years old can do the same until the boy is twelve at least, if he will but make the proper and manly effort. Boys of such tender years are of little or no use in a coal mine, and the fathers who are unwilling to lose what little money they would be able to earn, to the neglect of their sons' education, in addition to the injury of the youngsters' health, are unworthy of the name of parents. I have usually found that the men who employ such young boys did not need to do so through necessity, but only to satisfy their inordinate, greedy, and selfish dispositions.

The provision relative to the mine inspectors having to visit each mine in their respective districts four times a year is a very impracticable one, as we do not believe that any inspector can make four proper inspections to each mine yearly. Our legislator who was so anxious to map out so much work for the bituminous mine inspectors did not know surely what their duties were. A mere enumeration of our present duties will certainly convince the most prejudiced mind that the incorporation of such a provision in our law was a mistake. In the first place, there are, at least, an average of seventy mines for each inspection district. Say that an inspector will average, for the purpose of examination, one mine per day, to make four visits to each mine per year, it will occupy our time at least two hundred and eighty days. The office work will require at least the remaining thirty-five days. Where is the time to devote to the other duties of the position, viz: Attending to fatal accidents, acting as sealer of weights and measures, attending to the examinations for the purpose of testing the ability of applicants who desire to hold the position of mining-boss, and

attend to the prosecution of violators of the mining act? The time required to perform all of these duties efficiently cannot be computed by a simple rule in arithmetic, because the circumstances, as they arise, alone can govern such a matter; hence the absurdity of such legislation. The gentleman who was the author of this provision no doubt thought that he was doing something to increase the efficiency of mine inspection, but it seems that the honorable gentleman's zeal was far superior to his knowledge of what was necessary to benefit the system. This matter ought to be remedied as soon as possible.

The inspectors should be released from performing the duties of sealer of weights and measures. In some of the districts, they occupy a great deal of the inspector's time and attention, and such duties are really foreign to the true spirit of the mine inspection laws. Every extra duty that is added, not having for its object the protection of the lives and health of the persons employed in or about the mines, is one that detracts so much valuable time and attention that should be given to increasing the efficiency of mine inspection, for which we are held responsible, and for which we are specially appointed to attend to. Had the mine inspector of the Fifth district not been required to brand and measure mine cars, the probabilities are that we would not have been called upon to witness the Leisenring horror, at which nineteen persons lost their lives. The Legislature should correct this matter as speedily as possible, and put the duties belonging to such a position upon some person specially appointed for such a purpose.

Two examinations have been held to test the qualifications and fitness of applicants for the position of mining-boss, in compliance with the fifteenth section of the mining act. One of these was held at Mercer, and the other at Butler. At both examinations, thirty-six applicants appeared for examination, and out of that number twelve were successful, and were granted certificates of competency.

We believe that this provision of the new act is a wise one, and it will, most undoubtedly, have a good effect. It will have a tendency of calling into the service the best men, both intellectually and practically. The intelligent miners and mine operators all think well of this provision. Of course, we hear of some objectors, but as this is a natural instinct in some men, it need not give alarm. Take the act as a whole, we think that it is quite an improvement on the old one.

Office of the Mine Inspector of the Third Bituminous District of Pennsylvania:

Mercer, Mercer County, Pa., *December 16, 1885.*

The following instructions are given to the mine-bosses of this district with the view of assisting them in returning correct air measurements to this office, monthly:

In measuring the air with anemometer, select a place at or near the inlet or outlet of the mine, so that the area of the place selected can be ascertained correctly. Hold the air-meter directly facing the air-current for one minute, and note the number of revolutions of the fan as indicated by the pointer on the dial of the instrument. Every revolution of the fan of the air-meter indicates one linear foot in the motion of the air, and every revolution of the large pointer on the unit dial shows a velocity in the air of one hundred feet. Therefore, if the fan has made two hundred and fifty revolutions, or the large pointer on the unit dial has made two and one half revolutions in one minute, this shows a velocity or speed of air to be two hundred and fifty feet per minute, and, as all instruments for low velocities require an allowance of thirty or forty feet for friction, you should add thirty or forty feet to the velocity at each measurement, thus: 250 feet+40 feet=290 feet velocity; then multiply this velocity by the area of air-passage, the product of which would give the quantity of air passing per minute in cubic feet. Supposing the air-way to be 8 feet×5 feet, its area would be eight feet multiplied by five feet, which equals forty feet; then the quantity of air per minute would be 250 feet+40 feet=290 feet×40 feet=11,600 cubic feet.

In measuring air at inlet, in drift openings, you usually find the air-passage wider at the bottom than at the top. Then, supposing the inside measurements of the timbers to be six feet at top and eight feet at bottom and six feet high, to find the area of such a section, you add the top and bottom measurements together, and divide by two, and multiply the quotient by the height, the product will be the area, thus: 6 feet+8 feet÷2=7 feet; then 7 feet×6 feet=42 feet.

Supposing you have no anemometer with which to measure the air, you can do it by using powder smoke, thus: You select a part of the air-course of uniform size, and about fifty feet in length. Supposing then that it is 6 feet×5 feet, or any other size, you multiply the length, fifty feet, by the area, which, in this case, is 6 feet×5 feet, or thirty feet; then 50 feet×30 feet=1,500, which is the number of cubic feet in that length of air-course. You then flash off one cubic inch of powder at the windward end of the fifty feet, and note the time the powder smoke takes to travel this distance. If it is ten seconds, or any other number of seconds, in traveling the distance of fifty feet, you multiply the number of cubic feet of that part of the air-passage selected always by the sixty seconds, the number of seconds in one minute, and divide the product by the number of seconds that the air takes to travel the length, fifty feet, and the quotient will be the number of cubic feet of air passing per minute. In the example given, we find the quantity of air thus: 50 feet×6 feet×5 feet×60 seconds=90,000÷10=9,000 cubic feet.

In making your air measurements at the face of the headings, and ventilating the mine by a single current of air, do not put each measure-

ment that you take at the face of each entry in your monthly report to the inspector, but just report the average heading measurements.

If you have four entries, and measure four thousand feet in the first entry, three thousand feet in the second, two thousand feet in the third, and one thousand feet in the fourth, you should add these four measurements together, and divide their sum by four, the number of measurements taken, thus: 4,000 feet+3,000 feet+2,000 feet+1,000 feet=10,000 feet÷4=2,500 cubic feet of air, which is the average quantity circulating at the face of the four entries. If you add these different measurements, or tabulate the quantities of air as measured, and send them to this office, you convey the idea that you have four separate splits of air, the sum of which is ten thousand cubic feet, while in reality you have measured only one, or the same current of air, four times, in which you had only four thousand cubic feet of air to start with.

I would urge the importance upon every mining-boss of making his air measurements every week at the inlet, face of headings, and at the outlet, and the sending of your reports promptly at the end of each month to this office.

Yours, very respectfully,

Thomas K. Adams,
Inspector.

DESCRIPTION OF FATAL ACCIDENTS.

On November 14, 1884, John Smith, aged thirty-four years, was seriously injured by a fall of rock in the Standard mine, Butler county, and, although his back was broken, he lived until October, 1885, thus suffering for nearly twelve months. He and his partner, H. C. Turk, were driving an entry toward the outcrop of the coal, which required them to exercise more caution, owing to the fractures in the top rock being more open. It seems, however, from the evidence of Mr. Turk, that both he and Smith sounded that part of the roof from which the stone fell not long before the accident occurred. Mr. Smith at the time was "bearing in," and having part of his body protected by being beneath the undercut coal, he evidently considered himself secure. The stone, which was not large, fell close to the wall or entry face, and part of the body being exposed, the edge of it struck his back, fracturing the back-bone. I would not have considered the place where Smith was working a dangerous one, but probably the accident could not have been avoided. Smith was a practical miner, a native of England, married, and leaves a wife and four children.

On January 20, Joseph H. Beighley, miner, aged forty-four years, was fatally injured in Fairmount mine by mine cars. He was coming out of No. 17 heading from work, and stepped into the mouth of an old room to allow the mules to pass by with a loaded trip of cars, but when the cars were opposite him he attempted to get between them to ride part way out of the mine, in doing so, he lost his footing and was caught between the

cars and entry pillar, and was crushed so severely that he only lived four days. He was an American, married, and leaves a wife and seven children.

On February 12, Adolphus Meffert, miner, aged forty-nine years, was seriously injured while mining in Fairmount mine, Clarion county. Mr. Meffert had just started to work about five o'clock, A. M., and had only struck a few blows when a block of coal, that he had mined the night previous, fell upon him, breaking several bones in the lower part of his body. The son, who was working with his father, testified that his father sounded the loose coal before beginning to mine, and had considered it safe. He was a German, married, and leaves a wife and four children.

On April 30, Isaac Myrtle, miner, was killed by a fall of rock while loading a car of coal in Gosford mine, Armstrong county.

On June 29, Frank Dunbar, miner, aged forty-five years, was fatally injured by a fall of coal while mining in State Line mine, Beaver county. Mr. Dunbar had fired a shot in the coal the night previous, and sat down to mine in front of the shot coal, which very soon fell upon him with fatal results. He lived but a few hours. He was a single man.

On November 30, Ford Bash, miner, aged twenty years, was killed by a fall of slate while working in an entry in the Pittsburgh and Kiskiminetas mine, Westmoreland county. Mr. Bash and partner, Mr. Wilson, were driving entry, and had the stone well secured with timber, but while in the act of removing the props, he, Bash, stood directly under the loose roof, and, as what might have been expected to follow from such a foolish act, when the last blow was struck with the sledge the stone fell, crushing the poor fellow to death, instantly. He was warned by the mine-boss and a Mr. Hilty, who was working near him, of the dangerous condition of the roof. This fatal accident was certainly the result of gross carelessness. He was married, and leaves a wife and one child.

DESCRIPTION OF THE MINES.

Armstrong County—Reimerton

Is a drift opening, and is connected with the tipple on the Allegheny Valley railroad by an inclined plane of considerable length and pitch. It is not extensive, and only gave employment to fifteen men at time of visit, October 8. By all appearance, it seems that the mine has been conducted upon the "rule-of-thumb" principle, as far as the workings inside of it are concerned. The air was defective, owing to the air-passages being almost closed, and having no ventilating power only what nature gives; however, they were but a few feet from being through the hill, which would give them a second opening, and if the wind hereafter be in a favorable direction, they may have good ventilation. I have not had the time to make another visit to see whether or not it is now up to the requirements of the mining act. The drainage was fair.

The mine was only running about one third time, and is operated by the International Coal and Mining Company. This company has only had

control of the colliery for a short time. Wesley Wilson, superintendent; George Lorenz, mining-boss.

Riverview

Is an unextensive drift opening, with only seventeen persons employed in and about the mine. It is ventilated by natural means, and as a characteristic of this system of ventilation it was anything but bracing. They were doing very little work at this mine, not running more than one third time. Prospects for the future are not good. The mine and tipple are connected by an inclined plane. The tipple is on the Allegheny Valley railroad.

The mine is operated by the Riverview Coal Company. William Mullen, superintendent; J. L. Murray, mining-boss.

Kittanning, Nos. 1 and 2,

Are drift openings, but during my visit, October 1, they were not in operation, and had not been for several months previous.

The Kittanning Iron Company, (Limited,) operate the mines. H. A. Colwell, superintendent; James Curren, mining-boss.

Glen

Is located on the Allegheny Valley railroad, and the drift and tipple are connected by an inclined plane. The mine is ventilated by natural means. Number of persons employed, twenty-three. Part of the product of this mine is used in the locomotives on the Allegheny Valley railroad, they using about nine hundred bushels per day.

I measured two thousand cubic feet of air circulating in the mine. At time of my visit, October 1, the mine was in fair condition, both as to ventilation and drainage.

J. R. Smith, operator and superintendent; Samuel Dickey, mining-boss.

Gosford

Is a drift opening, located at Cowanshannock on the Allegheny Valley railroad, and operated by the Gosford Coal and Mining Company. Number of employés, thirty-three at time of visit, October 2. Mine is ventilated by natural means. I measured two thousand seven hundred cubic feet of air at inlet, but it was badly distributed to the face of workings, which is generally the case in mines where natural ventilation is depended upon to ventilate a mine. The drainage was fair.

W. W. Acheson, superintendent; W. W. Bosworth, mining-boss.

Oak Ridge

Is a drift opening, located on the L. G. division of the Allegheny Valley railroad, which is operated by the Oak Ridge Mining Company, with J. C. Baker, superintendent, and Henry Williams, mining-boss.

About one hundred and thirty-seven persons find employment at this mine. The ventilation was produced by a furnace, and the volume of air circulated was sufficient for all purposes. I measured seventeen thousand

cubic feet of air at inlet and at outlet, which was distributed well to the face of all the workings. The system of working is the double headings. Mine was in splendid condition.

The tipple and mine are connected by an inclined plane of over two thousand feet in length. The grade of this plane not being sufficient at the bottom for the loaded trip to carry the empty cars over the knuckle at top, a stationary engine has been erected on top of plane for that purpose, which does the work well.

The mines located in this county, Armstrong, have only been examined once during the year by me, as they were only added to my district during the latter half of this year.

BEAVER COUNTY.

Hulmes

Is a drift opening, located at Beaver Falls, and is operated by James Clayton. Number of persons employed at time of last visit, October 20, was twelve. Owing to natural gas taking the place of coal as a fuel at the manufactories in Beaver Falls, this mine is running very unsteadily.

A ventilating furnace has been built during the year, its size being 5′ 4″ wide and 3′ 6″ high above the grate bars. With very little fire I measured two thousand two hundred and fifty cubic feet of air. Mine in fair condition. Mr. Clayton manages his own mine.

State Line

Is a drift opening, and quite an extensive one, having over two hundred persons employed therein at time of last visit, October 21. Quantity of air in circulation was thirteen thousand five hundred and sixty cubic feet, but even this much was inadequate for such a mine. I, therefore, recommended the building of another furnace, which the company agreed to do. The current of air was not strong enough at face of headings. Drainage was imperfect, but at time of visit they had a large force of day men cleaning the drains and roads, which would improve the condition of the roads greatly. Mine is operated by the State Line Coal Company. Hugh Laughlin, superintendent, and John Sutherin, mine boss.

Mansfield.

This drift opening is producing a first-class quality of cannel coal, and the height of the vein is about seven feet. The face of the main entry is in a distance of about one and one half miles. They were employing twenty-three men inside of mine. Owing to one of the small fans being broken, the ventilation was not sufficient, and I notified the company of the defects, which they agreed to remedy. J. F. Mansfield, superintendent; Conrad Brown, mining-boss.

Davidson.

Situated at Beaver Falls, is operated by A. Davidson, and when inspected last October the mine was in splendid condition, both as regards ventilation

and drainage. I measured nine thousand six hundred cubic feet of air circulating, and well distributed to the face of the workings. Only eleven men were employed. The natural gas being the fuel used now at the manufactories at Beaver Falls, it has injured the trade of all the mines around the town.

Clayton.

This is another small mine at Beaver Falls, and had only ten persons employed when inspected by me last October. Owing to the mine not being sufficiently ventilated, I notified the owner, W. F. Clayton, to comply with the provisions of the mining act. He concluded to reduce the number of men, so as the provisions of the act would not apply to his mine, until such time as he could get it properly ventilated.

Benham.

Located at Clinton, and operated by Scott & Co. It is a drift opening, ventilated by a furnace. I found the ventilation of this mine sufficient. I measured six thousand six hundred and sixty-six cubic feet of air fairly distributed to face of the workings. Drainage was also good. Sixty persons were being employed in and about the mine. S. S. Hoyt, superintendent; Christopher Haswell, mining-boss.

All the mines in Beaver county have been examined at least twice during the year.

BUTLER COUNTY.

Allegheny.

Found thirty-two persons employed in and about this mine. The ventilation was sufficient, as there were four thousand four hundred cubic feet of air distributed to the face of workings. The drainage was fair. This is a slope opening, and operated by the Allegheny Coal Company. The mine at time of last visit, November 23, was only running one half time, and with a reduced number of men. Mining-boss, J. H. Lane.

Chisholm

Is a drift opening, and is connected with the tipple by an inclined plane. On November 23, the date of my last visit, the mine was not running, and for some time previous it had only been running one fourth time, and with a reduced force of miners. Only sixteen were being employed at that date. I measured four thousand two hundred and fifty cubic feet of air, which was well distributed to the face of workings. Drainage was good also. The Mercer Mining and Manufacturing Company operates the mine. Richard Lewis, superintendent; David Jenkins, mining-boss.

Barnes.

Situated at Harrisville station, and operated by the Mercer Mining and Manufacturing Company. Richard Lewis, superintendent; George Jenkins, mining-boss.

Mine was not running steadily, and had, previous to October, been idle for three months. The current of air was not strong, and could not take an air measurement, owing to the mine having so many openings in connection with it. The mine atmosphere was pure, however. The mine depends on natural means for ventilation. Drainage was fair. Richard Lewis, superintendent; George Jenkins, mining boss.

Turner's

Is a slope opening, dipping at an angle of one foot in three feet, and one hundred and eighty feet long. I found it being operated with but one opening, and I at once notified the company to sink the second opening, which has been done since my visit. Number of persons employed in and about the mine is thirty-eight. I measured only one thousand five hundred cubic feet of air circulating, but I am informed that since the shaft was sunk the ventilation has been improved considerably. Drainage was fair. The mine has not been operated much during the year. J. L. Turner, operator; Jacob Liston, mining-boss.

Keystone.

Situated at Roy, and operated by the Keystone Coal and Coke Company. J. G. Ogden, superintendent; Philip Nicholas, mining-boss.

The mine is a drift opening, and owing to the old workings, in which the second opening was located, being closed, it is not now accessible, consequently I notified the manager to sink an escape shaft, which he promised to do, but owing to the mine being shut down for some time it has not been sunk.

At time of last visit, September 8, thirty-three men were employed in and about the mine, and six men at the coke ovens. Fifty bee-hive coke ovens have been built, also. Stutz coal-washing and crushing machinery have been erected. Air defective, but drainage good.

Gomersal.

This mine is situated at Gomersal, and is operated by the Mahoning Valley Iron Company. William Ferguson, mining-boss.

The number of persons employed in and about the mine is eighty-six. I measured six thousand seven hundred and fifty cubic feet of air fairly distributed to the face of the workings. The drainage was fair. Quite a deep ditch had been dug to drain the lowest workings of the mine. All the defects were reported to the manager in charge.

Standard.

Situated near Euclid, and operated by the Standard Coal Company. This mine has only been operated but a few months during the year, and at present is entirely shut down. The second opening, which is 8 feet×4 feet, was sunk last February.

Western Drift.

Located at Karns City, and operated by W. C. Mobley & Co. J. W. Dawson, superintendent; James Watson, mining-boss.

The mine is not extensive, and only twenty-six persons were employed therein. I measured two thousand two hundred and ten cubic feet of air at face of the workings. The mine runs steadily, and supplies the locomotives on the Pittsburgh and Western narrow-gauge railroad. Mine in fair condition, both as to ventilation and drainage.

Caledonia Mine

Is a new opening, located on the S. and. A. railroad, but has not been visited by me, owing to the company not having the lawful number of men employed.

Union Coal and Coke Mine

Has not been inspected recently, owing to the mine being shut down.

CLARION COUNTY.

Fairmount, No. 2.

A drift opening, and giving employment to two hundred and nineteen persons. The workings are extensive, and opened on the double-heading system. I measured twelve thousand nine hundred and sixty cubic feet of air in circulation. This was the ventilation for the largest portion of the mine only. Ventilation produced by a furnace. The drainage and ventilation were good. The Fairmount Coal and Iron Company operate the mine. S. Taylor Sheaffer, superintendent; Rolly Henry, mining-boss.

Star and Long Run.

Both mines are operated by the North-Western Coal and Iron Company. S. Taylor Sheaffer, superintendent; John Friel, mining-boss.

The Star mine is comparatively new, and is opened on the double-heading system. The mine is in excellent condition. I measured twelve thousand one hundred and eighty cubic feet of air in mine, which was well distributed to face of workings. They have sunk a furnace shaft, and have built a furnace, which is six feet six inches wide, four feet above the bars, and fourteen feet arch. The depth of shaft is fifty-two feet, and air-stack on top, twenty feet.

The Long Run mine will soon be finished, but was in good condition at date of visit. At both mines about one hundred and twenty-five persons are employed at present.

Sligo Branch and Church Hill.

Both mines are running with a less number of employés than is required to bring them under the provisions of the act, consequently have not been examined by me lately.

Pine Run

Was examined on the 9th day of October last, and, with the exception of a few places, the mine was well ventilated. I measured ten thousand cubic

feet of air circulating, which was produced by a furnace. Drainage was good also. Mine situated at East Brady. Stephenson & Mitchell, operators. Thomas Mitchell, superintendent; William Jent, mining-boss.

Hardscrabble.

Operated by Brady's Bend Mining Company, and located at East Brady. C. F. Hartwell, superintendent; Andrew Fleming, mining-boss.

Number of employés employed in and about the mine is eighty-eight. The air was not as good as it should have been, and I notified the managers of the defects. The mine-boss informed me by letter that he would build a furnace; however, if it is not built soon I shall see that the ventilation is what the law requires, viz: One hundred cubic feet per person. A mine the size of this one cannot be ventilated properly by natural means. The drainage is fair.

New Catfish.

This is a drift opening, and connected with the tipple by an inclined plane. It has not been operated much during the year, and what little work had been done was with but few men. The number of persons employed, at date of last visit, was twenty-eight. I measured about four thousand cubic feet of air near face of workings. Drainage was also good.

The mine is operated by the Pittsburgh Coal and Mining Company. William Mullen, superintendent; J. L. Rankin, mining-boss.

Mineral Ridge, Nos. 1 and 2,

Are operated by the Mineral Ridge Coal Company. W. H. C. Eicke, superintendent; Jacob Rosenhofer, mining-boss.

Both places employ about sixty persons. No. 1 mine was poorly ventilated, consequently I ordered a furnace to be built, which has been done, and the mine is now up to the requirements of the law. Size of furnace built is 5 feet 6 inches×5 feet, and arch fifteen feet. It gives ten thousand feet of air, which is sufficient for such a mine. Drainage was fair.

Western Shaft.

This is a small shaft opening, and only about thirty five feet deep. It is located at Arthur's station on the Pittsburgh and Western narrow-gauge railroad. Had employed about eighteen men. Had the second opening sunk, but were not using it as a traveling-way, as they were driving an entry to the outcrop of the coal, and when it was through to the surface it was going to be used as the traveling-way. This third opening would improve the ventilation. Mine operated by W. C. Mobley & Co. William Thompson, mining-boss.

The mines of this county have all been visited twice or three times during the year.

LAWRENCE COUNTY.

Pearson.

Thirty persons are employed at this mine. It will soon be exhausted, but have another small shaft sunk to same coal lease, which will be ready to take the place of the old one when it is abandoned. I measured three thousand seven hundred cubic feet of air circulating, but it was not well distributed to the face of workings. The miners push their coal in small mine wagons to the bottom of the shaft, thus dispensing with the use of mulesi nside of the mine.

The Newcastle Railroad and Mining Company operates the mine. George Pearson, superintendent; John Bell, mining-boss.

Penn Mine

Has been idle nearly the whole year. The only work that has been going on has been the driving of a stone drift to do away with the use of the pumps, and machinery for hauling the coal out of the mine. Edwin Cook, mining-boss.

Beaver

Has not been running steadily during the year, and at date of last visit, October 23, it was only running about one half time, and with a reduced force of men. Number of employés in and about the mine was forty-three. I found the mine in excellent condition, both as to ventilation and drainage. I measured thirteen thousand cubic feet of air, which was well distributed.

Lee & Patterson, operators. H. K. Hartsiff, superintendent; Samuel Graham, mining-boss.

Clinton

Was in about the usual condition, as far as the drainage was concerned. Roads were somewhat muddy. The ventilation was also defective, as they had only three thousand nine hundred cubic feet of air in circulation, and about fifty-seven persons employed inside. I notified the company of the defects. The mine-boss promised to have the drainage and ventilation improved. Mine has been run very unsteadily during the year.

Clinton Coal Company operates the mine. Alfred Harbison, superintendent; Walter Craig, mining-boss.

The mines in this county have been visited two and three times during the year.

MERCER COUNTY.

Lackawannock

Is a shaft over two hundred feet deep, and, according to the recent bituminous mine act, the miners have to be hoisted by machinery instead of traveling a long stairway. They have complied with the law in this respect, viz: The putting on the cages and drum, and the necessary safety appliances. At my last visit, December 11, I measured thirteen thousand eight hundred and sixty cubic feet of air, which was well distributed to the face of the larger portion of the workings. The drainage of this mine has

always been splendid, but, owing to the pillars being removed, the top strata has become much broken, and allowed an inordinate quantity of water to come into the workings, thereby making some of the roads a little wet.

The Pierce Coal Company, (Limited,) operates the mine. Archy McIntyre, mining-boss.

Neshannock

Is a shaft opening, and operated by Hedrich, Parsch, Seiler & Co. on a small scale. At time of my last visit, December 11, they had only employed thirteen persons in and about the mine. Mine was not in good condition, but the company informs me that the ventilation is now good. Jacob Hedrich, mining-boss.

New Virginia

Was employing sixty-nine persons in and about the mine when visited on December 10. I measured seven thousand seven hundred cubic feet of air at upcast shaft, but only found, near face of main entry, about one thousand five hundred and forty cubic feet, consequently the distribution was defective. The drainage was fair. The mine has not been operated regularly during the year.

Mine operated by Perkins Iron Company. Thomas Bailey is the present mine-boss.

Stoneboro', Nos. 2 and 3.

No. 3 mine has not been in operation since about the 15th of last August, and the coal for shipment has all been taken from the No. 2 slope since that date. No. 2 was last examined on the 27th day of October. I found the mine in ordinary condition, with the roads a little muddy. I measured about fourteen thousand cubic feet of air, which was circulated to face of the different entries very well. About two hundred and ten persons were employed in and about the mine. The mines are operated by the Mercer Coal and Iron Company. Robert P. Cann, manager; Benjamin F. Esgar, boss of No. 2, and Herbert Edwards, boss of No. 3.

Carver Shaft.

As the traveling-way is ninety-four feet six inches, the men will have to be hoisted from the mine by machinery; I, therefore, notified the company to attach the safety catches to the cages, &c, and hoist the men. They had twenty-nine employés employed in and about the mine. I measured three thousand seven hundred cubic feet of air at the face of the main entry. Mine, as a whole, is in good condition. Frank Filer, superintendent; Charles Whitlach, mining-boss.

Ormsby Slope.

Employing forty employés, and found every part of the main workings well ventilated. I measured an average quantity of air at face of headings

of five thousand cubic feet. The air is produced by a fan, ten feet in diameter. A new shaft, to be used as a traveling-way, was sunk during the year.

L. M. Ormsby & Co., (Limited,) are the operators. L. M. Ormsby, superintendent; James Beveridge, mining-boss.

Ormsby Shaft.

Operated by the Ormsby Coal Company, (Limited.) Frank Hazzard, superintendent; Andrew McWilliams, mining-boss.

Had employed sixty men inside. I found the mine in splendid condition, both as regards drainage and ventilation. I measured an average quantity of air at face of headings of about five thousend cubic feet, and at outlet and inlet about eighteen thousand cubic feet. Ventilation produced by an eight feet diameter fan.

Hickory Slope.

This mine was poorly ventilated, owing to the ventilating furnace being partly out of repair. I recommended that a fan be erected, which the manager agreed to do. A fan, ten feet in diameter, has been built, and giving good results, so if the mine-boss conducts the ventilation properly, the workmen will have good ventilation.

The mine is operated by Hazzard, Wood & Co. Frank Hazzard, superintendent; John Milsom, mine-boss.

Enterprise

Was employing thirty-five men inside. I measured three thousand one hundred and twenty cubic feet of air circulating in the mine. Owing to the irregularity and defective system of working the mine, the air-current was weak at the face of the workings. Drainage fair. Moses W. Jenkins, mine boss.

Black Diamond

Was examined last on September 23, and found it in fair condition, both in regard to the ventilation and drainage. At the inlet, I measured four thousand five hundred cubic feet of air, and only one thousand eight hundred cubic feet of air at the face of workings. Had employed in and about the mine thirty-eight persons. Henry Filer, mining-boss.

Trout

Is a shaft opening, and was in fair condition last September. I ordered a second opening to be sunk, but since that the company has almost shut down the mine.

Spears

Is a shaft opening, and operated by the Pine Grove Coal Company. James Spears, mining-boss.

When I examined the mine last September, I found fifty-four men being employed in and about the mine. I measured four thousand five hundred cubic feet of air at face of main entry. The mine was fairly ventilated, and also the drainage was good. The second opening was sunk during the year, which was forty feet deep.

Pardoe

Is a drift opening, and operated by the Mercer Mining and Manufacturing Company. Richard Lewis, superintendent; John Michaels, mining-boss.

The mine was in fair condition, as far as the ventilation was concerned, but some of the hauling roads were wet. A mine locomotive hauls coal in this mine for about three fourths of a mile. I measured twelve thousand seven hundred cubic feet of air, which was fairly distributed to the face of the workings. They were employing fifty or sixty men at time of last visit.

Chestnut Ridge

Was examined on the 7th of September, and found the ventilation defective, and ordered the erection of a fan, which they (the company) agreed to do. The fan has been made, and is at the mine, but not yet put up; however, an air shaft has been sunk at the head of main entry, which has given sufficient ventilation in the meantime. Drainage was fair. They are employing about eighty-eight persons in and about the mine.

Operators are Filer, Westerman & Co. Enoch Filer, junior, mining-boss.

Wheeler

Will soon be exhausted, but were employing, at time of last visit, about thirty men inside of mine. The defects reported to manager were remedied soon after my visit.

The same company (Sharon Coal Company, Limited,) are sinking a new slope opening into another lease of coal not far from the present shaft that has been in operation for the last four years, so it will take the place of the old opening. Morgan B. Hofius, mining-boss.

Jackson.

I visited this mine on January 13, and found forty-three persons employed in and about the mine. The mine was in fair condition at that date, but has not been examined by me since. Owing to the dullness of the coal trade they have not had a lawful number of men employed, so as to come under the provisions of the mining act.

The Jackson Coal Company operate the mine. William Graham, supertendent; Augustus Winkelvohs, mining-boss.

Bethel.

This is a new shaft that has been sunk during the year, but when the coal was reached the company allowed it to fill up with water. Bethel Coal Company sunk the shaft. It has a depth of one hundred and eighty-

two feet, and size inside of timbers is 8 feet×16 feet. The shaft was sunk in exactly one hundred and eighty-two shifts, with a force of four men on each shift. It hardly cost three thousand dollars to sink it, including the timbering for at least sixty feet. This is one of the cheapest shafts of similar size that has been sunk in Mercer county.

The mines in this county have all been visited twice or thrice during the year.

WESTMORELAND COUNTY.

Fairbanks

Was not running during my visit to that county, but is now in operation. It is operated by the Saltsburg Coal Company.

D. S. Robinson, superintendent, and John B. Johnson, mine-boss.

Roaring Run, Nos. 1 and 2,

Were not in operation during my visit.

Leechburg, Nos. 1 and 2,

Were not in operation when visiting the mines in the county, but Leechburg, No. 3, was running, and operated by the Leechburg Coal Company. A. W. Ashbaugh, superintendent; A. S. Anderson, mining-boss. At this mine, seventy-three persons are employed. It is a drift opening, and well ventilated. Ventilation produced by a good furnace, which has been recently built. Its size is seven feet wide, six feet above grate bars, and arch twenty feet long. Drainage was good. About seventeen thousand cubic feet of air was measured, which was fairly distributed to face of the workings.

Pittsburgh and Kiskiminetas

Is a drift opening, operated by the Pittsburgh and Kiskiminetas Coal Company. Alfred Hicks, superintendent; William S. Lewis, mine-boss.

The drainage of the mine was good, but the air was defective. I, therefore, ordered a furnace to be built. The company agreed to build it, and at present they have nearly completed a substantial furnace, which will produce ample ventilation for such a mine.

Bagdad

Was giving employment to about thirty-six persons. It is a drift opening, and is connected with the tipple by an inclined plane. The drainage was good, but ventilation not good. I suggested the building of a furnace for this mine, which the company promised to do.

The company operating the mine is the Bagdad Coal Company. Alfred Hicks, superintendent, and William S. Lewis, mine-boss.

The mines of this county have only been examined once during the year.

TABLE I.—*Showing location of collieries in the Third Bituminous Mine District.*

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post-Office Address.
Allegheny,	Allegheny Coal Company,	Butler,	John H. Lane,	Argeutine P. O.
Benham,	Scott & Co.,	Beaver,	L. S. Hoyt,	Rock Point P. O.
Buckeye,	Buckeye Coal Company,	Butler,	Frank Morrison,	Argentine P. O.
Barus,	Mercer Miuiug and Manufacturing Company,	do.	Richard Lewis,	Pardoe, Mercer county.
Bethel,	Bethel Coal Company,	Mercer,	Thomas Bailey,	Sharon.
Black Diamond,	Filer, Sntliff & Co.,	do.	Enoch Filer, Sr.,	do.
Bagdad,	Bagdad Coal Company,	Westmoreland,	Alfred Hicks,	Leechburg, Armstrong couuty.
Beaver,	Lee & Patterson,	Lawrence,	H. K. Hartsiff,	Rock Point P. O., Beaver county.
Bostonia, Nos. 1 and 2,	North-Westeru Coal and Iron Company,	Armstrong,	S. Taylor Sheaffer,	Fairmount City, Clarion eounty.
Clinton,	Clinton Coal Company,	Lawrence,	Alfred Harbisou,	Rock Point P. O., Beaver county.
Carver,	Carver Coal Compauy,	Mercer,	Frank Filer,	Jaekson Centre.
Chestnut Ridge,	Filer, Westerman & Co.,	do	Enoch Filer, Sr.,	Sharon.
Clayton,	W. F. Clayton,	Beaver,	W. F. Clayton,	Beaver Falls.
Caledonia,	Caledonia Coal Company,	Butler,	George W. Crawford,	Grove City, Mercer eounty.
Chisholm,	Mercer Mining aud Manufacturing Company,	do.	Richard Lewis,	Pardoe, Mercer county.
Church Hill,	Church Hill Coal Company,	Clarion,	George Horner,	West Monterey.
Davidson,	A. Davidson,	Beaver,	A. Davidson,	Beaver Falls.
Enterprise,	Filer & Westerman,	Mercer,	Frank Filer,	Jackson Centre.
Fairmount, No. 2,	Fairmount Coal and Iron Company,	Clarion,	S. Taylor Sheaffer,	Fairmount City.
Fairbanks,	Saltsburg Coal Company,	Westmoreland,	D. S. Robinson,	Saltsburg, Indiana county.
Gomersal,	Mahoning Valley Iron Company,	Butler,	William Ferguson,	Gomersal.
Glen,	J. R. Smith,	Armstrong,	J. R. Smith,	Kelley's.
Gosford,	Gosford Coal and Mining Company,	do.	W. A. Acheson,	Gosford.
Hardserabble,	Brady's Bend Mining Company,	Clarion,	C. F. Hartwell,	South Oil City.
Hickory Slope,	Hazzard, Wood & Co.,	Mercer,	Frank Hazzard,	Mercer.
Hulmes,	James Clayton,	Beaver,	James Clayton,	Beaver Falls.
Jackson,	Jackson Coal Company,	Mercer,	William Graham,	Jackson Centre.
Kittanning, Nos. 1 and 2,	Kittanning Irou Company,	Armstrong,	H. A. Colwell,	Kittanning.
Keystone,	Keystone Coal and Coke Company,	Butler,	J. G. Ogden,	Roy P. O.
Long Run,	North-Westeru Coal aud Iron Company,	Clarion,	S. Taylor Sheaffer,	Fairmouut City.
Leechbur., No. 2,	Leechburg Coal Company,	Westmoreland,	D. B. Ashbaugh,	Ashbaugh P. O.
Leechburg, No. 3,	do. do.	do.	A. W. Ashbaugh,	do.
Lackawannock,	Pierce Coal Company, Limited,	Mercer,	James Pierce,	Sharpsville.
Mansfield,	J. F. Mansfield,	Beaver,	J. F. Mausfield,	Cannelton.
Mineral Ridge, Nos. 1 & 2,	Mineral Ridge Coal Company,	Clarion,	C. W. H. Eicke,	West Monterey.
Maple Grove,	S. P. McCalmont,	Venango,	Charles A. McKinney,	Raymiltou.
Neshannoek,	Hedrieh, Parsch & Co.,	Mercer,	Jaeob Hedrieh,	Neshaunock.
New Virginia,	Perkius Iron Company,	do.	S. Perkins, Jr.,	Sharou.
New Catfish,	Pittsburgh Coal and Mining Company,	Clarion,	William Mullen,	Catfish.
Oak Ridge, Nos. 1 and 2,	Oak Ridge Mining Company,	Armstrong,	J. C. Baker,	Dexter.
Ormsby Slope,	L. M. Ormsby & Co., Limited,	Mercer,	L. M. Ormsby,	Mereer.
Ormsby Shaft,	Ormsby Coal Company, Limited,	do.	Frank Hazzard,	do.
Pardoe,	Mercer Mining and Manufaeturing Company,	do.	Richard Lewis,	Pardoe.
Pearson,	New Castle Railroad and Mining Company,	Lawrenee,	George Pearson,	New Castle.

Penn,	Penn Coal Company,	do.	do.	do.
Pittsburgh&Kiskiminetas,	Pittsburgh and Kiskiminetas Coal Company,	Westmoreland,	Alfred Hicks,	Leechburg, Armstrong county.
Pine Run,	Stephenson & Mitchell,	Clarion,	Thomas Milson,	East Brady.
Reimerton,	International Coal Mining Company,	Armstrong,	Wesley Wilson,	Rimer.
River View,	Riverview Coal Company,	do.	William Mullen,	do.
Roaring Run, Nos. 1 & 2,	Westmoreland County Coal and Coke Company,	Westmoreland.		
State Line,	State Line Coal Company,	Beaver,	Hugh Laughlin,	East Palestine, Ohio.
Shedden,	Shedden & Co.,	Mercer,	John Shedden,	Hermitage P. O.
Stoneboro', No. 2,	Mercer Coal and Iron Company,	do.	Robert Cann,	Stoneboro'.
Stoneboro', No. 3,	do.	do.	do.	do.
Spear's,	Pine Grove Coal Company,	do.	James Spears,	Grove City.
Standard,	Standard Coal Company,	Butler.		
Star,	North-Western Coal and Iron Company,	Clarion,	S. Taylor Sheaffer,	Fairmount City.
Sligo Branch,	Craig & S. Coon,	do.	S. Coon,	Reimersburg.
Trout,	Trout, Carnes & Co.,	Mercer,	Enoch Filer, Sr.,	Sharon.
Wheeler,	Sharon Coal Company, Limited,	do.	Morgan Hofius,	Grove City.
Western Shaft,	W. C. Mobley & Co.,	Clarion,	J. W. Dawson,	Karns City, Butler county.
Western Slope,	do.	Butler,	do.	do.
Union Coal & Coke Mine,	Union Coal and Coke Company,	do.	George G. Stage,	Greenville, Mercer county.

TABLE II.—*Showing character of coal, production, number of employés, days employed, casualties, &c., in the Third Bituminous Mine District.*

COLLIERIES.	Operators.	Character of coal. (Anthracite or Semi-Anthracite, Bituminous or Semi-Bituminous.)	Drift, slope, or shaft.	Number of inside workmen.	Number of outside workmen.	Total employees.	Number of days worked inside.	Number of days worked outside.	Number of horses and mules.	PRODUCTION.		CASUALTIES.				
										Approximated number of tons produced run of mine cars.	Number of tons shipped lump coal.	Killed inside.	Killed outside.	Injured inside.	Injured outside.	Total killed and injured.
Allegheny,	Allegheny Coal Company,	Bituminous,	Slope,	46	7	53	161	161	4	21,084	15,052					
Benham,	Scott & Co.,	do.	Drift,	60	11	71	175	175	7	44,800	32,000					
Barnes,	Mercer Mining and Manufacturing Co.,	do.	do.	67	11	78	152	152	16	33,624	24,017					
Black Diamond,	Filer, Sutliff & Co.,	do.	Shaft,	40	6	46	163	163	3	23,114	16,510					
Bagdad,	Bagdad Coal Company,	do.	Drift,	28	2	30	243	243	2	19,502	13,930					
Beaver,	Lee & Patterson,	do.	do.	50	12	62	118	118	6	22,400	16,000					
Clinton,	Clinton Coal Company,	do.	do.	40	5	45	210	210	5	27,244	19,460					
Carver,	Carver Coal Company,	do.	Shaft,	31	6	37	191	191	2	13,713	9,795					
Chestnut Ridge,	Filer, Westerman & Co.,	do.	do.	85	7	92	223	223	6	44,563	31,831					
Clayton,	W. F. Clayton,	do.	Drift,	14	2	16	290	290	1	4,270	3,050					
Caledonia,	Caledonia Coal Company,	do.	do.	10	2	12	. . .	. . .	1	1,500	900					
Chisholm,	Mercer Mining and Manufacturing Co.,	do.	do.	20	11	31	50	50	2	4,028	2,877					
Church Hill,	Church Hill Coal Company,	do.	do.	12	5	17	60	60	2	5,040	3,600					
Davidson,	A. Davidson,	do.	do.	6	1	7	. . .	. . .	1	3,137	2,274					
Enterprise,	Filer & Westermau,	do.	Slope,	50	6	56	193	193	5	22,344	15,960					
Fairmount, No. 2,	Fairmount Coal and Iron Company,	do.	Dritt,	159	55	214	214	214	15	109,832	71,899	2		1		3
Fairbanks,	Saltsburg Coal Company,	do.	do.	75	18	93	161	161	7	50,400	36,000					
Gomersal,	Mahoning Valley Iron Company,	do.	do.	83	7	90	174	174	5	51,223	38,338					
Glen,	J. R. Smith,	do.	do.	24	3	27	300	300	2	12,000	10,800					
Gosford,	Gosford Coal and Mining Company,	do.	do.	25	4	29	. . .	. . .	3	12,500	7,500	1				1
Hardscrabble,	Brady's Bend Mining Company,	do.	do.	100	10	110	. . .	. . .	5	50,000	30,000			1		1
Hickory Slope,	Hazzard, Wood & Co.,	do.	Slope,	60	8	68	212	212	5	60,503	43,220					
Hulmes,	James Clayton,	do.	Drift,	18	1	19	241	241	1	8,631	8,631					
Jackson,	Jackson Coal Company,	do.	do.	25	3	28	145	145	5	10,000	5,089					
Kittanning,	Kittanuing Irou Company,	do.	do.	30	2	32	. . .	. . .	6	8,000	4,800					
Keystone,	Keystone Coal and Coke Company,	do.	do.	25	12	37	. . .	. . .	3	5,000	3,000					
Long Run,	North-Western Coal and Iron Company,	do.	do.	39	4	43	232	232	5	30,000	21,643					
Leechburg, Nos. 2 and 3,	Leechburg Coal Compauy,	do.	do.	96	8	104	234	234	6	70,498	50,356					
Lackawannock,	Pierce Coal Company, Limited,	do. bl'ck	Shaft,	111	12	123	186	186	7	45,385	40,385					
Mansfield,	J. F. Mansfield,	do. can'l	Drift,	20	3	22	250	250	3	13,000	13,000					
Mineral Ridge, Nos. 1 and 2,	Mineral Ridge Coal Company,	do.	do.	98	11	109	267	267	7	36,977	26,412					
Maple Grove,	S. P. McCalmont,	do.	do.	9	1	10	. . .	. . .	2	2,500	2,000					
Neshanuock,	Hedrich, Parsch & Co.,	do. bl'ck	Shaft,	20	3	23	. . .	. . .	1	5,148	4,597					

New Virginia,	Virginia Coal Company,	do. bl'ck	do.	59	6	65	160	160	3	18,504	16,521	. .	. .	. .	. .	. .
New Catfish,	Pittsburgh Coal and Mining Company,	do.	Drift,	24	2	26	. . .	. . .	2	4,200	3,000	. .	. .	. .	. .	. .
Oak Ridge, Nos. 1 and 2,	Oak Ridge Mining Company,	do.	do.	163	16	179	213	213	9	105,956	63,574	. .	. .	2	. .	2
Ormsby Slope,	L. M. Ormsby & Co., Limited,	do.	Slope,	47	6	53	202	202	4	22,556	13,534	. .	. .	. .	. .	. .
Ormsby Shaft,	Ormsby Coal Company, Limited,	do.	Shaft,	77	10	87	139	139	5	38,655	23,193	. .	. .	. .	. .	. .
Pardoe,	Mercer Mining and Manufacturing Co.,	do.	Drift,	79	12	91	135	135	12	27,488	19,634	. .	. .	. .	. .	. .
Pearson,	New Castle Railroad and Mining Co.,	do.	Shaft,	30	5	35	100	100	. . .	7,000	6,677	. .	. .	. .	. .	. .
Pittsburgh and Kiskiminetas,	Pittsburgh and Kiskiminetas Coal Co.,	do.	Drift,	43	3	46	254	254	3	42,447	30,319	1	. .	. .	. .	1
Pine Run,	Stephenson & Mitchell,	do.	do.	90	6	96	145	145	7	43,146	34,390	. .	. .	. .	. .	. .
Reimerton,	International Coal and Mining Co.,	do.	do.	20	4	24	. . .	. . .	3	5,000	3,000	. .	. .	. .	. .	. .
Riverview,	Riverview Coal Company,	do.	do.	21	3	24	. . .	. . .	3	4,200	3,000	. .	. .	. .	. .	. .
Standard,	Standard Coal Company,	do.	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1	. .	. .	. .	1
State Line,	State Line Coal Company,	do.	Drift,	125	15	140	250	250	14	125,118	83,406	1	. .	2	. .	3
Shedden,	Shedden & Co.,	do.	Shaft,	8	4	12	. . .	. . .	. . .	2,000	1,628	. .	. .	. .	. .	. .
Stoneboro', Nos. 2 and 3,	Mercer Coal and Iron Company,	do.	Slope,	216	27	243	153	153	28	109,437	78,169	. .	. .	4	. .	4
Spear's,	Pine Grove Coal Company,	do.	Shaft,	33	4	37	186	186	2	24,000	14,400	. .	. .	. .	. .	. .
Star,	North-Western Coal and Iron Company,	do.	Drift,	109	20	129	233	233	5	79,828	52,897	. .	. .	. .	. .	. .
Sligo Branch,	Craig & S. Coon,	do.	do.	6	2	8	60	60	1	2,500	2,100	. .	. .	. .	. .	. .
Turner's,	J. L. Turner,	do.	Slope,	40	6	46	80	80	3	8,497	6,069	. .	. .	. .	. .	. .
Wheeler,	Sharon Coal Company,	do.	Shaft,	38	6	44	240	240	5	23,200	13,920	. .	. .	. .	. .	. .
Western Shaft,	W. C. Mobley & Co.,	do.	do.	16	3	19	. . .	. . .	. . .	7,000	4,200	. .	. .	. .	. .	. .
Western Drift,	do. do.	do.	Drift,	35	5	40	275	275	4	20,000	15,000	. .	. .	. .	. .	. .
Union Coal and Coke Mine,	Union Coal and Coke Company,	do.	do.	125	10	135	60	60	10	10,970	7,836	. .	. .	. .	. .	. .
Grand totals,	. . . . . .	. . . .	. . . .	3,080	434	3,514	7,730	7,730	274	1,608,647	1,121,398	6	. .	10	. .	16

TABLE III.—*A statement showing the method of ventilation, amount of air discharged, number of openings and headings, and size of inlets and outlets in the respective collieries of the Third Bituminous Mine District.*

NAME OF COLLIERY.	How ventilated.	Diameter of fan in feet.	Size of furnace.	Amount of air discharged per minute.	Number of openings.	Number of headings.	Inlet—size of—square feet.	Outlet—size of—square feet.
Allegheny	Furnace		4 x 4	13,200	3	2	21	20
Barnes	Natural means			3,000	2	2	42	25
Benham	Furnace		6 x 3¼	6,666	2	3	36	30
Black Diamond	Exhaust steam			1,800	2	2	100	24
Beaver	Furnace		7 x 5	13,520	3	3	30	24
Bagdad	Natural means			1,000	2	2	42	30
Chestnut Ridge	Exhaust steam			9,190	3	4	104	32
Chisholm	Basket furnace		3 x 3	3,600	3	2	36	21
Clayton	Furnace		3 x 3	3,000	2	1	30	20
Carver	Exhaust steam			3,740	2	3	104	24
Caledonia	Natural.							
Davidson	Furnace		6 x 4½	9,610	2	1	30	30
Enterprise	Basket furnace		4 x 3	3,300	3	2	42	24
Fairmount, No. 2	Furnace		6 x 3½	12,960	4	4	44	28
Fairbanks	"		6 x 12	....	3	3	50	45
Glen	Natural means			2,000	2	1	42	25
Gosford	"			2,730	3	2	36	21
Gomersal	Furnace		4 x 3	6,750	3	3	54	25
Hulmes	"		5¼ x 3½	2,250	3	1	30	25
Hardscrabble	Natural means			3,000	3	3	59	40
Hickory Slope	Fan	10		4,680	2	2	42	30
Kittanning, Nos. 1 and 2	Natural means			4,800	4	1	48	48
Keystone	"			1,000	1	1	42	
Lackawannock	Exhaust steam			10,000	2	4	27	103
Long Run	Furnace		3 x 3	4,000	2	...	60	25
Leechburg, No. 3	"		7 x 6	17,875	3	4	42	36
Mansfield	"		4 x 3½	2,000	2	1	60	30
Mineral Ridge, No. 1	"		5′ 1″ x 5½	1,500	2	...	42	42
Mineral Ridge, No. 2	Natural means			12,900	3	3	100	48
Maple Grove	Furnace		6 x 4	5,000	2	...	30	50
New Virginia	Exhaust steam			7,500	2	1	104	24
New Catfish	Natural means			7,680	2	...	35	42
Neshannock	Exhaust steam			2,000	2	1	104	24
Oak Ridge, No. 1	Furnace		4 x 4	17,000	3	5	48	30
Ormsby Shaft	Fan	8		18,000	2	3	104	21
Ormsby Slope	"	10		6,650	3	3	16	35
Penn	Furnace		4 x 3½	4,000	3	2	35	30
Pine Run	"		6½ x 3½	11,165	3	4	42	30
Pearson	Exhaust steam			3,700	2	...	60	10
Pittsburgh and Kiskiminetas	Furnace		6 x 4½	9,854	4	2	60	36
Pardoe	Fan	8		12,700	3	4	40	36
Reimerton	Natural means			1,500	2	1	30	30
River View	"			1,500	2	1	42	30
Sligo Branch	Furnace		6 x 3	5,000	3	...	30	20
State Line	"		6 x 4½	13,500	3	4	40	28
Star	"		6½ x 4	12,000	3	4	42	30
Stoneboro', No. 2	"		6½ x 4½	15,000	3	5	91	30
Stoneboro', No. 3	Fan	10		6,500	2	3	40	42
Spear's	Exhaust steam			4,500	2	2	104	24
Turners	Furnace		3 x 3	1,500	2	2	48	50
Wheeler	Exhaust steam			2,500	3	...	104	8
Western Drift	Natural means			2,280	2	2	12	30
Western Shaft	Exhaust steam			1,000	2	1	24	60
Union Coal and Coke Mine	Furnace		6 x 3½	8,500	3	2	80	30

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

Name of Colliery.	November—1881.						December—1884.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Allegheny,	317	6,350	188	7,504	133	6,094	. . .	. . .	. . .	. . .	. . .	. . .
Benham,	417	15,030	220	5,940	391	14,040	470	16,920	225	6,075	425	15,300
Beechtree,	387	34,028	197	17,757	258	25,855	. . .	. . .	. . .	. . .	. . .	. . .
Black Diamond,	300	6,000	. . .	. . .	. . .	. . .	300	6,060	. . .	. . .	. . .	. . .
Clermont,	135	4,455	127	2,295	312	6,015	. . .	. . .	. . .	. . .	. . .	. . .
Cascade,	100	4,900	130	3,120	200	4,800	140	5,880	170	4,080	150	5,400
Chestnut Ridge,	119	6,935	129	4,660	234	7,614	129	6,793	123	4,445	234	8,714
Dagus Slope,	257	10,300	305	7,320	262	9,450	144	5,175	122	4,287	260	9,360
Dagus Slope, No. 5,	212	7,630	242	5,820	265	6,625	315	12,620	372	8,940	337	12,150
Dagus Slope, No. 8,	156	11,250	119	4,156	285	10,260	202	7,290	235	5,640	192	6,930
Dagus Slope, No. 20,	447	16,110	487	13,650	329	15,780	511	18,396	486	13,615	356	17,100
Eureka Slope,	220	6,600	167	5,416	320	3,840	. . .	. . .	. . .	. . .	. . .	. . .
Enterprise,	167	5,225	67	2,025	162	4,875	175	5,250	145	4,350	190	5,700
Hardscrabble,	500	21,000	250	10,625	250	10,500	412	17,325	150	7,200	412	17,325
Hulmes,	. . .	. . .	. . .	. . .	. . .	. . .	56	4,395	67	3,465	340	6,800
Instanter, No. 1,	215	7,095	265	5,565	342	8,220	210	6,930	260	5,460	335	8,040
Instanter, No. 2,	210	6,300	235	4,935	235	8,225	235	7,050	250	5,250	242	8,487
Lackawannock,	411	10,281	404	10,094	370	10,175	425	10,625	415	10,375	387	10,836
Mansfield,	93	3,582	583	3,500	80	3,640	97	3,686	633	3,801	90	4,095
Neshannock,	86	2,860	66	1,126	154	3,075	. . .	. . .	. . .	. . .	. . .	. . .
Ormsby Shaft,	625	19,000	500	8,000	595	19,000	. . .	. . .	. . .	. . .	. . .	. . .
Pleasant Valley,	307	17,220	393	4,950	487	17,018	307	17,220	394	16,535	487	17,062
Rankin,	277	12,487	273	8,202	299	11,394	292	13,162	269	8,073	309	11,779
Stoneboro', No. 2,	296	21,307	233	19,812	691	20,737	209	15,025	202	18,817	591	17,737
Stoneboro', No. 3,	845	21,125	566	20,376	517	21,735	845	21,125	570	20,520	501	21,063
Soldier's Run,	147	12,337	130	12,480	390	12,480	. . .	. . .	. . .	. . .	. . .	. . .
Sprague,	186	14,160	153	14,690	287	13,800	203	15,857	149	14,270	337	16,100
St. Mary's,	246	19,680	255	16,575	236	19,393	257	20,600	279	18,135	247	20,295
Trout,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	4,000
Union Coal & Coke Mine	210	8,820	202	8,450	. . .	. . .	210	8,820	. . .	. . .	200	8,400
Wheeler,	173	5,226	346	5,536	346	5,536	. . .	. . .	. . .	. . .	. . .	. . .

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Allegheny,	. . .	. . .	. . .	. . .	. . .	. . .	304	6,065	322	9,655	129	6,198	. . .	. . .	. . .	. . .	. . .	. . .
Black Diamond,	250	5,060	. . .	. . .	150	5,460	200	4,000	. . .	. . .	. . .	. . .	300	6,060	. . .	. . .	250	8,855
Beechtree, No. 2,	494	23,724	223	9,812	533	31,955	518	21,876	356	19,327	329	19,725	. . .	. . .	. . .	. . .	. . .	. . .
Benham,	472	17,010	225	6,075	432	15,570	. . .	. . .	. . .	. . .	. . .	. . .	470	16,920	222	6,007	420	15,120
Buckeye,	238	10,710	400	11,832	439	7,677	130	5,850	220	9,190	275	4,812	. . .	. . .	. . .	. . .	. . .	. . .
Bucktail,	220	7,480	234	7,389	190	8,930	206	7,321	204	7,131	222	8,214	275	10,175	112	7,854	217	9,331
Barnes,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Beaver,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Bagdad,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Cascade,	110	5,390	220	5,280	170	5,100	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Chestnut Ridge,	252	6,803	128	4,605	236	7,847	132	6,856	140	5,045	234	7,714	193	8,102	197	8,065	312	9,375
Claytou,	. . .	. . .	. . .	. . .	. . .	. . .	138	3,450	60	1,512	149	2,975	. . .	. . .	. . .	. . .	. . .	. . .
Carver,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Clinton,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Chisholm,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Davidson,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus Slope,	322	12,900	362	8,700	325	11,700	260	10,400	270	5,940	185	6,660	265	10,600	297	8,330	295	10,325
Dagus, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 4,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 5,	195	7,120	217	5,220	170	6,120	237	8,550	232	5,580	195	6,825	202	7,087	227	5,460	220	6,600
Dagus, No. 7,	127	4,590	119	4,154	252	9,090	. . .	. . .	. . .	. . .	. . .	. . .	115	8,280	105	3,675	227	7,230
Dagus, No. 8,							117	4,230	112	3,937	232	8,370						
Dagus, No. 11,	. . .	. . .	. . .	. . .	. . .	. . .	182	6,570	85	3,060	190	6,650	225	6,750	91	3,447	251	8,794
Dagus, No. 19,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 20,	532	9,170	620	17,360	407	19,560	517	13,360	521	14,595	370	17,760	450	16,200	435	12,180	357	17,100
Dagus, No. 21,	. . .	. . .	. . .	. . .	. . .	. . .	186	6,705	226	5,420	234	6,810	186	6,705	201	4,830	234	6,810
Eureka Slope,	232	11,160	170	4,690	207	2,490	200	6,300	170	4,690	220	3,000	197	5,925	160	4,000	207	2,490
Enterprise,	165	4,125	67	2,025	210	6,300	. . .	. . .	. . .	. . .	. . .	. . .	162	4,062	57	1,725	195	7,020
Fairmount, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Fairbanks,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

Glen,																		
Gosford,																		
Gomersal,																		
Hall's Shaft,	200	7,000	180	6,000	432	8,000	267	9,630	185	3,792	311	8,715	175	6,318	185	5,642	356	9,975
Hulmes,	56	4,365	69	3,570	229	4,575	57	4,417	77	3,915	241	4,820	54	4,192	87	4,165	229	4,575
Hardscrabble,	212	8,925	100	3,000	212	8,925	375	15,750	100	4,800	375	15,750	181	7,612	100	4,800	187	9,000
Hickory Slope,																		
Instanter, No. 1,	215	7,095	235	4,935	330	7,920	215	7,095	242	5,092	337	8,100	205	6,765	222	4,777	322	7,740
Instanter, No. 2,	235	7,050	215	4,115	212	8,487	235	7,050	227	4,777	242	8,487	242	7,275	242	5,092	255	8,925
Kittanning,																		
Lackawannock,							457	11,437	442	11,052	407	11,106	416	10,406	407	11,187	395	9,875
Leechburg, No. 3,																		
Long Run,																		
Mansfield,							80	3,080	575	3,450	70	3,185	75	2,887	525	3,150	78	3,510
Mineral Ridge,																		
Maple Grove,																		
Neshannock,	85	2,550	67	1,165	155	2,635	83	2,500	68	1,162	156	2,820	85	2,550	65	1,105	155	2,790
New Virginia,							250	7,000	150	2,138	300	7,000						
New Catfish,																		
Ormsby Shaft,																		
Ormsby Slope,																		
Oak Ridge, No. 1,																		
Oak Ridge, No. 2,																		
Pleasant Valley,	132	7,420	167	7,035	208	7,297							130	7,280	170	7,140	205	7,175
Pine Run,																		
Pearson,																		
Pardoe,																		
Pittsburgh and Kiskiminetas,																		
Rimerton,																		
Riverview																		
Stoneboro', No. 2,	222	15,980	151	13,740	607	18,225	351	25,280	288	28,780	722	21,660	357	17,875	226	17,867	649	19,462
Stoneboro', No. 3,	830	20,750	565	20,840	505	21,199	807	20,187	570	21,520	486	20,422	845	21,125	580	20,880	502	21,105
Sprague,							169	14,385	156	15,000	287	13,800						
St. Mary's,	250	20,000	230	19,300	250	20,910	257	20,600	228	19,152	257	21,074	275	22,000	246	20,664	267	21,894
State Line,							657	23,012	90	3,100	639	23,012		23,115		2,062		23,115
Soldier Run,							157	13,177	113	10,800	410	13,120	147	12,337	118	11,325	365	11,680
Sharon,							146	6,121	104	4,596	309	4,952						
Sligo Branch,																		
Star,																		
Spear's,																		
Trout,	150	4,000			200	5,000	200	4,000										4,500
Turner's,																		
Union Coke and Coal Mine,							207	8,715			202	9,720						5,000
Wheeler,																		
Western Drift,																		

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	APRIL.						MAY.						JUNE.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Allegheny,	200	4,000	300	3,600	200	4,050	225	4,500	333	3,996	225	4,050	. . .	. . .	. . .	. . .	. . .	. . .
Black Diamond,	253	8,855	. . .	. . .	. . .	. . .	253	5,060	. . .	. . .	156	5,460	. . .	. . .	. . .	. . .	. . .	. . .
Beechtree, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Benham,	460	16,160	200	5,400	440	16,860	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Buckeye,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Bucktail,	270	9,720	250	8,000	225	9,000	230	8,280	115	4,025	200	8,000	200	7,200	200	4,800	210	8,400
Barnes,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Beaver,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Bagdad,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Cascade,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	150	5,600	200	4,800	210	5,040
Chestnut Ridge,	200	8,000	150	3,750	300	9,000	200	8,000	150	6,200	300	9,000	200	8,750	150	6,200	300	9,000
Clayton,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Carver,	150	8,340	170	6,000	390	9,130	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Clinton,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Chisholm,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Davidson,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus Slope,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 1,	320	12,800	350	9,800	360	12,600	310	12,400	340	9,500	350	12,250	510	12,400	330	13,200	350	12,350
Dagus, No. 4,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 5,	65	2,225	95	3,325	. . .	. . .	85	3,060	≷	. . .	. . .	. . .	≷100	3,500	. . .	. . .	100	3,500
Dagus, No. 7,	110	3,960	. . .	. . .	210	6,200	115	4,140	≷120	4,200	210	6,300	≷ 80	2,880	. . .	. . .	200	6,650
Dagus, No. 8,	145	5,040	100	3,500	150	5,250	85	2,975	. . .	. . .	85	2,975	100	3,600	110	3,850	. . .	. . .
Dagus, No. 11,	140	5,220	. . .	. . .	110	3,850	170	6,120	105	3,630	210	7,350	155	5,580	110	3,960	190	6,650
Dagus, No. 19,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 20,	445	16,020	410	11,408	305	14,640	550	19,800	600	16,800	430	20,640	460	16,560	460	12,880	320	15,360
Dagus, No. 21,	180	6,480	220	5,280	290	6,960	250	10,500	400	9,600	490	11,760	220	9,240	320	7,680	370	8,880
Eureka Slope,	210	6,300	200	6,000	200	6,000	200	6,660	170	4,690	200	6,600	160	4,800	155	4,050	170	2,040
Enterprise,	. . .	. . .	. . .	. . .	. . .	. . .	140	5,040	50	1,500	180	5,400	130	3,750	50	1,500	150	3,750
Fairmount, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Fairbanks,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

Glen,																		
Gosford,																		
Gomersal,																		
Hall's Shaft,																		
Hulmes,	150	4,050	90	2,700	200	4,000	85	3,060	80	2,400	150	3,600	90	3,240	80	2,400	190	3,800
Hardscrabble,																		
Hickory Slope,							160	6,240	70	1,750	190	5,510						
Instanter, No. 1,	220	7,260	250	5,250	250	8,400	220	7,260	220	4,620	350	8,400	200	6,600	220	4,620	300	7,200
Instanter, No. 2,	220	6,600	250	5,250	250	8,750	220	6,600	220	4,620	220	7,700	250	7,500	250	5,250	250	8,750
Kittanning,																		
Lackawannock,	400	10,000	410	10,250	420	10,500												
Leechburg, No. 3,																		
Long Run,																		
Mansfield,													90	3,465	520	3,120	75	3,412
Mineral Ridge,																		
Maple Grove,																		
Neshannock,					100	2,000	80	2,400	60	1,050	150	2,700	80	2,400	60	1,020	150	2,700
New Virginia,																		
New Catfish,																		
Ormsby Shaft,																		
Ormsby Slope,																		
Oak Ridge, No. 1,																		
Oak Ridge, No. 2,																		
Pleasant Valley,	130	7,280	170	7,140	205	7,175	245	13,720	320	13,440	390	13,650	230	12,880	306	12,852	365	12,775
Pine Run,																		
Pearson,																		
Pardoe,																		
Pittsburgh and Kiskiminetas,																		
Reimerton,																		
Riverview,																		
Stoneboro', No. 2,	440	17,000	220	4,000	575	17,250	440	19,400	240	4,000	650	19,500	280	18,300	210	4,200	595	17,850
Stoneboro', No. 3,	840	21,000	570	20,520	520	21,840	860	21,400	570	20,550	512	21,504	850	21,504	590	21,210	509	21,291
Sprague,							175	13,975	170	15,840	275	13,200						
St. Mary's,	270	21,600	235	19,740	271	22,222	400	38,400	290	29,000	410	38,950	410	39,360	295	29,500	430	40,850
State Line,		23,550		23,550		23,550		23,100		2,800		23,550		22,400		3,500		22,400
Soldier Run,	190	11,900	110	5,280	370	11,840	200	12,390	110	5,280	390	11,980	110	12,000	105	5,040	350	11,200
Sharon,																		
Sligo Branch,																		
Star,																		
Spear's,																		
Trout,						3,000						4,000						
Turner's,																		
Union Coke and Coal Mine,	210	8,820																
Wheeler,																		
Western Drift,																		

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Allegheny,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	200	4,000	160	1,920	222	3,990
Black Diamond,	185	4,080	150	5,460	150	5,460	200	9,875	. . .	. . .	150	5,460	200	4,080	. . .	. . .	150	5,460
Beechtree, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Benham,	. . .	. . .	. . .	. . .	. . .	. . .	460	16,160	200	5,400	410	15,840	480	17,280	220	5,940	460	16,860
Buckeye,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Bucktail,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Barnes,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Beaver,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Bagdad,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Cascade,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Chestnut Ridge,	280	11,200	350	8,400	310	10,850	230	9,875	150	3,500	300	9,000	250	7,800	140	4,800	250	8,250
Clayton,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Carver,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Clinton,	. . .	. . .	. . .	. . .	. . .	. . .	100	4,200	130	3,900	200	6,000	. . .	. . .	. . .	. . .	. . .	. . .
Chisholm,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Davidson,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus Slope,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 4,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 5,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 7,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 8,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 11,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 19,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 20,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 21,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Eureka Slope,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Enterprise,	150	4,500	70	2,100	160	4,800	140	4,200	70	2,100	150	5,400	130	3,250	50	1,500	140	3,500
Fairmount, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Fairbanks,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

Glen,																		
Gosford,																		
Gomersal,																		
Hall's Shaft,																		
Hulmes,	80	2,880	80	2,400	110	3,300	85	2,060	200	2,000	100	3,000	80	2,880	85	2,550	90	2,700
Hardscrabble,													200	8,400	150	6,200	200	8,400
Hickory Slope,													160	6,240	70	1,750	190	5,510
Instanter, No. 1,																		
Instanter, No. 2,																		
Kittanning,																		
Lackawannock,							400	10,000	415	10,375	380	10,450	550	13,750	198	9,504	420	12,600
Leechburg, No. 3,							300	14,400	260	12,480	360	17,280	300	14,400	260	12,480	360	17,280
Long Run,																		
Mansfield,													80	3,060	500	3,000	70	3,185
Mineral Ridge,																		
Maple Grove,																		
Neshannock,	80	2,400	60	1,020	150	2,700							80	2,400	70	1,190	130	2,600
New Virginia,																		
New Catfish,	145	6,960	150	6,300	154	6,468							150	6,750	180	6,650	182	6,825
Ormsby Shaft,							560	16,800	275	4,400	800	16,800	520	15,440	290	4,640	730	16,790
Ormsby Slope,																		
Oak Ridge, No. 1,													270	15,450	220	7,100	200	20,150
Oak Ridge, No. 2,													60	2,610	130	2,080	180	2,880
Pleasant Valley,																		
Pine Run,																		
Pearson,																		
Pardoe,																		
Pittsburgh and Kiskiminetas,																		
Reimerton,																		
Riverview,																		
Stoneboro', No. 2,	440	17,050	200	4,000	600	18,000	340	17,400	200	4,000	600	18,000	410	17,300	200	4,000	610	18,300
Stoneboro', No. 3,	850	21,250	590	21,240	509	21,295	850	21,250	560	20,160	509	21,294						
Sprague,																		
St. Mary's,																		
State Line,		23,800		2,800		23,450		23,450		3,150		24,150		22,750		2,800		23,750
Soldier Run,																		
Sharon,																		
Sligo Branch,													75	2,250	70	1,080	120	2,880
Star,																		
Spear's,																		
Trout,						3,000						4,000						3,000
Turner's,																		
Union Coke and Coal Mine,																		
Wheeler,							168	4,200	118	1,888	268	4,020	168	4,200	138	2,208	268	4,020
Western Drift,																		

TABLE III.—VENTILATION OF COLLIERIES.—*Continued.*

NAME OF COLLIERY.	OCTOBER.						NOVEMBER.						DECEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number Of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Allegheny	179	9,198	239	3,689	398	9,634	532	10,650	161	1,932	468	12,914	138	8,623	138	1,665	359	8,610
Black Diamond	150	3,120	100	2,200	150	3,120	200	4,000	125	2,000	200	4,000	220	4,440	§		160	3,200
Beechtree, No. 2																		
Benham	262	9,450	210	5,670	337	8,550	265	9,540	210	5,080	252	8,890	275	9,900	195	4,680	287	8,625
Buckeye																		
Bucktail																		
Barnes	100	3,000	40	1,500	100	3,000	110	4,079	90	4,039	161	4,037	100	4,200	140	4,200	186	4,200
Beaver	303	9,082	97	3,373	489	12,322	328	10,652	87	4,990	560	14,566	322	8,050	172	4,306	109	13,240
Bagdad	80	4,320	§		80	4,320	76	4,117	§		76	4,117	83	3,481	§		83	3,481
Cascade																		
Chestnut Ridge	307	12,300	165	6,613	317	13,335	301	14,993	254	11,231	342	17,023	208	13,805	219	9,796	291	14,562
Clayton	†						†						†					
Carver	195	7,020	90	2,000	300	8,000	195	7,020	92	2,590	310	8,680	157	5,670	91	2,372	292	8,336
Clinton	96	5,662	82	5,940	230	6,900	106	6,375	99	3,750	222	6,675	231	6,937	231	6,937	256	7,687
Chisholm	115	4,255	190	2,755	200	4,050	‡						92	3,885	120	3,360	142	3,562
Davidson	†						†						†					
Dagus Slope																		
Dagus, No. 1																		
Dagus, No. 4																		
Dagus, No. 5																		
Dagus, No. 7																		
Dagus, No. 8																		
Dagus, No. 11																		
Dagus, No. 19																		
Dagus, No. 20																		
Dagus, No. 21																		
Enreka Slope																		
Enterprise	145	3,625	84	2,512	141	3,531	124	3,091	92	3,330	131	4,707	124	3,034	89	2,662	131	3,269
Fairmount, No. 2	269	13,181	218	19,350	537	19,350	314	15,376	265	12,985	507	18,270	282	13,842	252	12,372	476	17,027
Fairbanks	*						*						167	7,872	103	9,791	192	3,662

Glen,	51	2,661	40	2,000	50	2,661	54	2,661	42	2,104	54	2,257	56	2,794	44	2,165	56	2,362
Gosford,	155	5,115	40	1,600	260	5,850	216	7,136	51	2,700	325	7,812	*					
Gomersal,	137	8,900	102	8,200	353	9,530	122	7,950	167	6,700	358	9,675	161	7,740	125	4,750	861	9,754
Hall's Shaft,																		
Hulmes,	90	3,250	95	2,850	102	3,000	87	3,150	92	2,753	111	3,337	79	2,835	86	2,587	97	2,925
Hardscrabble,	225	9,850	125	5,900	225	9,850	212	8,925	§		212	8,925	244	10,237	136	13,037	315	13,230
Hickory Slope,	160	6,240	75	1,750	190	5,570	160	6,240	195	5,510	190	5,570	317	12,375	§		414	12,000
Instanter, No. 1,																		
Instanter, No. 2,																		
Kittanning,	*						97	4,650		§	97	4,656	100	4,800	§		100	4,800
Lackawannock,	442	11,062	442	11,062	407	11,206	477	17,437	697	15,479	481	14,422	939	23,469	687	22,687	758	20,856
Leechburg, No. 3,	450	21,600	387	18,600	400	28,800	450	21,600	387	18,600	400	28,800	419	20,100	356	17,100	412	29,700
Long Run,	300	12,190	300	12,190	300	12,190	100	4,200	100	4,200	100	4,200	100	4,200	100	4,200	100	4,200
Mansfield,	60	2,250	500	3,000	45	2,043	73	2,822	57	3,210	71	3,208	72	2,791	56	2,362	60	2,730
Mineral Ridge,	‡						124	12,450	91	13,509	270	12,960	124	12,450	91	13,509	276	12,960
Maple Grove,	†						†						†					
Neshannock,	†						†						86	2,587	74	1,254	87	1,575
New Virginia,	150	7,000	110	1,540	400	7,733	150	7,000	110	1,540	400	7,733	‡					
New Catfish,	149	6,694	174	6,747	174	6,708	*						*					
Ormsby Shaft,	490	9,800	340	5,400	950	19,850	*						*					
Ormsby Slope,	400	6,000	250	4,000	400	6,000	400	6,000	250	4,000	400	6,000	277	6,340	150	4,500	277	6,340
Oak Ridge, No. 1,	205	8,590	148	3,774	115	4,600	245	16,779	109	6,000	207	19,156	321	21,176	163	7,190	252	23,312
Oak Ridge, No. 2,	200	8,100	199	3,975	282	12,972	*						*					
Pleasaut Valley,																		
Pine Run,	222	10,126	§		222	10,126	300	4,000	§		300	4,050	‡					
Pearson,		1,485	§		§								281	6,750			281	6,750
Pardoe,	322	6,450	195	4,398	162	5,354	243	8,757	218	4,638	288	8,727	316	11,394	282	6,893	293	8,868
Pittsburgh and Kiskiminetas,	107	6,021	§		107	6,021	137	7,425	§		137	7,425	183	9,854	§		183	9,854
Reimerton,	‡						150	3,375	150	3,375	150	3,375	100	4,200	§		§	
Riverview,	*						*						*					
Stoneboro', No. 2,	239	15,812	464	7,432	596	17,887	224	19,924	225	19,385	667	20,025	270	19,982	114	7,750	659	19,762
Stoneboro', No. 3,																		
Sprague,																		
St. Mary's,																		
State Line,		22,225		2,812		22,225		21,787		2,675		21,800	626	21,900	80	2,800	626	21,900
Soldier Run,																		
Sharon,																		
Sligo Branch,																		
Star,	400	10,000	225	9,900	208	10,000	400	10,000	225	9,900	208	10,000	350	12,254	275	12,100	350	12,250
Spear's,	175	8,400	300	6,750	300	7,800	175	8,400	300	6,750	175	8,400	175	6,800	244	5,850	325	6,500
Trout,																		
Turner's,		1,825		1,825		1,825	195	7,800	72	2,892	109	5,870	195	7,800	72	2,892	109	5,870
Union Coke and Coal Mine,																		
Wheeler,	‡						153	4,075	163	2,448	260	3,907	161	4,025	151	2,416	258	3,877
Western Drift,		2,550	§			2,550		2,550		§		2,550	100	2,500	100	2,200	100	2,500

§ Omission of outlet, inlet, or heading measurement.
† Mine running with less than ten persons.
‡ Not reported during the month.
* Mine not running during the month.

TABLE IV.—*List of accidents occurring in the mines of the Third Bituminous Mine District for the fourteen months ending December 31, 1885.*

Date of accident.	NAME OF PERSON INJURED.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident.
1884.							1884.	
Nov. 14	John Smith,	34	Married,	4	Standard,	Butler,	Dec. 4	Back broken by a fall of rock, and died of his injuries, October, 1885.
25	William Kearney,	38	Married,		Stoneboro', No. 2,	Mercer,		Foot injured by a fall of slate.
Dec. 2	John Bingham,	42	Married,		do.	do.		Back injured by a fall of slate.
26	James Perry,				Hardscrabble,	Clarion,		Thigh bone fractured by mine cars.
1885.							1885.	
Jan. 20	Joseph Beighley,	44	Married,	7	Fairmount, No. 2,	Clarion,	Jan. 29	Killed by mine cars.
Feb. 12	Adolphus Meffert,	49	Married,	4	do.	do.	Feb. 17	Fatally injured by a fall of coal.
Mch. 10	John Belis,	18	Single,		Roaring Run,	Westmoreland,		Leg broken and otherwise injured by coal from a shot.
28	Isa Shingledecker,				Oak Ridge,	Armstrong,		Leg broken by mine cars.
Apr. 30	Thomas Whitehouse,	40	Married,		State Line,	Beaver,		Injured by mine cars.
30	Isaac Myrtle,				Gosford,	Armstrong,	Apr. 30	Killed by fall of roof while loading a car with coal.
June 29	Frank Dunbar,	45	Single,		State Line,	Beaver,	June 29	Killed by a fall of coal.
29	Mike Berry,	25	Single,		do.	do.		Injured by a fall of slate.
Sept. 17	John Bingham,	42	Married,		Stoneboro', No. 2,	Mercer,		Injured by a fall of slate.
21	Henry Davis,	42	Married,		do.	do.		Hand crushed between two mine cars.
25	Simeon Risher,	43	Married,		Oak Ridge,	Armstrong,		Two ribs broken by mine cars.
30	Frederick Decker,	30	Married,		Fairmount, No. 2,	Clarion,		Leg broken by a fall of coal.
Nov. 30	Ford Bash,	20	Married,	1	Pittsburgh & Kiskiminetas,	Westmoreland,	Dec. 1	Killed by fall of slate.

TABLE V.—*Showing the grand total of employés, horses, mules, engines, pumps, boilers, and powder employed, tons of coal mined and shipped, fatal and non-fatal accidents, &c., in the Third Bituminous Mine District for the year ending December 31, 1885.*

Name of Counties and Parts of Counties in the District.	Total number of men employed.	Total number of boys employed.	Total number of horses and mules employed.	Total number of engines and pumps employed.	Total number of boilers employed.	Total number of kegs of powder consumed.	Total number of tons of coal produced.	Total number of tons of coal shipped.	Total number of fatal accidents.	Total number of non-fatal accidents.	Total number of times air measurements were taken.
Armstrong,	287	28	26	1	1	.....	147,656	92,674	1	2	1
Butler,	495	27	48	6	6	.....	155,926	113,089	1	.....	3
Beaver,	317	29	27	1	2	.....	198,956	142,361	1	2	3
Clarion,	698	73	49	1	2	.....	373,523	250,146	2	2	3
Lawrence,	127	15	11	1	1	.....	56,644	42,137			
Mercer,	1,003	102	93	43	43	.....	490,595	348,386	.....	4	3
Venango,	9	1	2	.....	.....	.....	2,500	2,000			
Westmoreland,	246	31	19	.....	.....	.....	182,847	130,605	1	1	1

FOURTH DISTRICT.

Hon. J. SIMPSON AFRICA, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania:*

SIR: I have the honor herewith of submitting to you my annual report, as inspector of mines for the Fourth bituminous district of Pennsylvania, which is now composed of the following counties: Bradford, Tioga, Lycoming, Clinton, Potter, McKean, Elk, Cameron, Jefferson, and that part of Clearfield county lying along the Low Grade Division of the Allegheny Valley railroad.

The condition of the mines during the year has been good, and the ventilation was also good.

Since the last report from this district several mines have been abandoned, and others have been closed on account of the depressed condition of the coal trade; one or two new mines have been opened, and more will be opened as soon as there is a better demand for the coal.

In this connection I can heartily indorse what Inspector Louttit, of the First district, said one year ago, namely: that "the inspectors should be relieved from the duties of testing scales and branding pit cars. This should be made the duty of a separate person appointed specially for that purpose. The testing of scales and measuring and branding of mine cars are entirely foreign to the spirit and intention of the mining law as it was originally projected, and should not have been coupled with it."

Accompanying this report, you will find the usual tables, with a brief description of the condition of the mines, and a report on the fatal and non-fatal accidents during the year:

Number of mines in district,	56
Number of persons employed inside.	4, 708
Number of persons employed outside,	910
Total number of persons employed,	5, 618
Number of mules inside and outside,	492
Number of fatal accidents,	8
Number of non-fatal accidents,	10
Production in tons of 2,000 pounds,	2, 880, 021
Number of tons per fatal accident,	360, 000
Number of tons per non-fatal accident,	288, 000
Average number of days worked during the year,	226

Average price paid for digging per ton, in cents, ...	51.55
Number of coke ovens in district, ...	733

The above is respectfully submitted.

Very respectfully,

Roger Hampson.

Towanda, *February 20, 1886.*

CONDITION OF MINES.

Barclay Mines, Nos. 1, 2, 3, and 4.

These mines have worked steadily during the year; the work has consisted mainly in taking out room and gangway pillars, and on this account the mines could not be kept as dry as they ought to be, as the roof would break to the surface, thus letting in the water.

The ventilation of these mines was good considering the disadvantages the management had to labor under, and everything has been well looked after during the year. Frank F. Lyon is general superintendent, and Fred. Lyon is mine foreman.

Visited the mines twice during the year.

Long Valley.

This mine has worked fair during the year. Quite a large amount of heading work has been driven on the south side of the workings, and on account of being so much troubled with swamps, and experiencing great difficulty in getting out the water, they have decided to put down a shaft and put in a steam pump.

The ventilation of the mine was fair, and things well looked after.

Visited this mine twice during the year.

Mr. E. O. Macfarlane is general superintendent, and John Carroll, mine foreman.

Carbon Run.

These mines were abandoned during the month of December, 1884.

Fall Creek.

These mines are run sometimes with three miners, and at other times half a dozen.

Fall Brook.

These mines have worked steadily during the past year, and the work in drifts 1 and 2 has been confined to pulling back the pillars and working a few rooms. The condition of the mines during the year has been very good, and no expense has been spared in adding to the comfort of the men.

This company is now engaged prospecting two miles north of the village, and at last accounts everything was looking very favorable.

Fred. Wells is superintendent, and Robert Russell, mine foreman.

Visited these mines twice during the year.

Morris Run.

Work has been fairly good at these mines during the year, the slope mine has been pushed very briskly, the rope has been extended from 2,000 feet to 4,000 feet in length, and new headings have been started from the bottom of the slope. In the Salt Lake mine, heading work has been pushed very much, while in the East mine there is nothing but pillar drawing going on.

The drainage of the mines is good, but the ventilation, owing to the great extent of the mines, has not been very good, as the furnaces have really more work to do than is possible for them. Arrangements are now being made to improve the same, and I trust in my next report to be able to report a better condition of things. In the Slope mine they have a large automatic pump forcing the water over the hill, and it seems to give perfect satisfaction. W. S. Nearing, general manager; William R. Gilmour, mine foreman, and Michael Driscoll and Campbell Haddow, mine-bosses.

Antrim Mine.

During the past year, work has been fair at these mines, and quite a large amount of coal has been shipped from them. Considerable new ground has been opened up in No. 1 mine, and in the slope mine a new slope has been driven with the exception of about three hundred feet from the outside, and this will be finished by spring of 1886. When completed will make a saving in haulage of over one thousand yards.

There are quite a number of automatic pumps used in pumping water out of the numerous swamps here, and also a few coal cutting machines at work. The ventilation of these mines is very good, and everything in first-rate order. The assistant general superintendent, James Pollock, is making many and decided improvements that reflect to his credit, and show him to be a very progressive man in mine management. The inside mine foremen are Messrs. Joseph Lodge and George Snedden.

Visited these mines twice during the year.

Arnot Mines.

In the beginning and summer of the past year, work was very poor at these mines, but toward fall business revived with them, so that by the end of the year they were doing quite a large business, necessitating the use of their two locomotives in the lower drift, and as the coal from the upper or ridge workings now comes through the lower drift, they have all the work they can possibly do.

The mines have been very well looked after by Mr. Dunsmore, the mine foreman, and the ventilation of the workings dependent on the fan has been very good.

The upper drift was idle during the summer, but was again started in the fall, and they are now shipping quite a large amount of coal from it. The work consists mainly in pillar drawing, but will last for quite a long time.

Visited these mines twice during the year.

Gaines.

These mines employ about fifty men and boys, and the work has been good with them during the year. A new water-way has been made during the year, and drains their mine very well. The ventilation was also very good during the year, and the mines were well looked after in every respect. P. A. Jordan is superintendent, and Patrick Smith, mine foreman, both very capable men.

Have visited the mines twice during the year.

Cameron.

At my first visit to this mine there were only about eighteen men at work, drawing the pillars, and also driving a heading close to crop. Ventilation was fair, and the mine well looked after by Mr. John Morris, the superintendent. When I went to visit them again the mine was shut down indefinitely.

Tannerdale.

This is a small mine about three miles from St. Mary's, Elk county, and employs about twenty-five miners. The area to be worked is very limited, but will last for a year or two at their present rate of working. Condition of mine very good and well looked after.

Visited the mines twice during the year.

Jacob Anderson is mine foreman.

St. Mary's, 1, 2, and 3.

These mines, owned by the St. Mary's Coal Company, are small, and employ in the aggregate about one hundred men and boys. The mines are ventilated by furnace, and the ventilation was good in all of them. In this new mine they have started out on the overcast system, and so far the results are entirely satisfactory. The coal is used mainly on the engines of the P. & E. R. R. Joseph Eddy is the mine foreman.

Visited these mines twice during the year.

Cascade.

These are three drifts, all connected one with the other, and in one of them there are only a few pillars left, and in the other the work is getting very much narrowed down.

The condition of the mines was very good, the ventilation being well attended to, and everything in good shape. Martin Dippold, mine foreman.

Bucktail.

This is a small mine located near Rasselas, Elk county, and employs about sixty men and boys; the vein is low, but headings are of good height. Condition of mine, at the time of my visit, was very good; it was abandoned at the end of the year. W. D. L. Hardie was mine foreman.

Eureka Slope.

This is a small work operated by Daniel Eldridge, and employing about forty miners. Two headings were being driven, and the mine was found to be well ventilated at both my visits during the year. Patrick Fleming, mine foreman.

Dagus Mines.

Owned and operated by the N. W. Mining and Exchange Company. David Robertson, general superintendent.

Visited these mines twice during the year, and found the ventilation and drainage very good.

In No. 20 drift they have a perfect system of over casts, and also in the other drifts on the Toby branch. A very large number of men are employed, and work has been good with them during the year, and the opening of the Toby branch railroad has made the handling of the coal very much easier. Everything around these works shows careful management, and at the same time every effort is made to comply with the law in all respects. The mines are ventilated some by furnaces, and one large mine, by a 16-foot Guibal fan. The mine foremen, John Currie, Victor Swanson, and John Aikman, are well-posted and good men, and their mines show that they give much and careful attention to them.

Brock Mine.

This is a new mine opened the past summer by the N. W. Mining and Exchange Company, and is about two miles from Brockwayville, on Toby branch. The coal, so far, shows remarkably well, being on an average five feet in thickness. Two main headings are driven into the body of the coal, and cross-headings turned off. A Murphy fan will be erected at the drift mouth.

Beechtree.

No. 2 mine is the only mine that has been running this year, and a great deal of new ground has been opened up, and a large water-way has been completed, thus affording very good drainage for the mine.

Visited this mine twice during the year, and found the ventilation very good at both visits, and carried well around the face of the workings. Everything is in first-class order and well looked after. Mr. John Bell, superintendent of mines.

Coal Glen.

This is a new mine opened about one mile from Beechtree, No. 1, mine, and is operated by the Jefferson Coal Company; it is also on the same vein as the Beechtree mines, and the characteristics of the coal are similar in every respect.

At my first visit the ventilation was very poor, owing to there being no

regular furnace, but on my second visit the ventilation was first-class, as a six-foot Murphy fan had been erected. Mine is operated on the double-heading system with room and pillar.

Austin Blakeslee is superintendent, and W. R. Jones, mine foreman.

Dixon Mine

Is located one mile from Fall Creek, and operated by H. C. Springer & Co. At my first visit the mine was idle, but on my second visit they were at work employing about forty miners. The drainage of the mine was good, as was also the ventilation. The area to be worked out is very small, and may, perhaps, last them for two years. John Williams, mine-foreman.

Rochester Mine.

Operated by Bell, Lewis & Yates is very extensive, and gives employment to about five hundred men and boys. During the year they have pumped out the water from the Sandy Lick workings, and now have a large number of men at work in that portion of the mines. A shaft has also been sunk four thousand feet from the face of the Sandy Lick workings, and a double heading will be driven from it to the Sandy Lick workings, thus affording both drainage and ventilation for them.

The mine is ventilated by a Murphy fan. There are three inlets, and at my first visit the ventilation was good, but on my second, owing to the absence of a new boiler, the ventilation was not good. The mine is very well looked after. L. W. Robinson is superintendent, and Michael Kelley and John Bolen are mine foremen.

Walston Mines, 1 and 2.

Work has been good at these mines during the year, and great improvements have been made. Over two hundred coke ovens were built, and two large wells for supplying the town and ovens with water were drilled. Other improvements are also contemplated for the coming year, as more ovens are to be built, and a large slope is to be put down.

Visited these mines twice, and on my first visit did not find No. 1 mine in very good condition, as the bratticing had been allowed to fall behind. No. 2 mine was found in very good condition at that time.

On my second visit, No. 1 mine was improved considerably in the matter of ventilation, and No. 2 mine was in very good order, and well looked after. John M Leavy is superintendent, and William Landy, mine foreman.

Soldier Run.

This mine was shut down at the beginning of the summer, and then was started in September. The drainage of the mine was good, but the ventilation at face of workings hardly reached the requirements of the law.

On my second visit it was a little better all round. No headings are being driven, only rooms and pillars. B. J. Morris, mine foreman.

Hamilton Mine.

This was not running on my first visit, but was on my second. Ventilation and drainage were up to requirements of law, and mine was in good condition. Workings consist only of rooms and pillars, no headings being driven at all. B. J. Morris, mine foreman.

Pleasant Valley.

This mine is owned and operated by Powers, Brown & Co., who also own and operate Sprague, Soldier Run, and Hamilton mines.

Visited this mine twice during the year, and on my first visit found the mine in first-class order, both as regards drainage and ventilation, and everything well looked after. On my second visit the mine had just shut down for an indefinite period, and the men taken to the other mines. The plan of working the mine is single-heading, with air-course. Thomas Evans, mine foreman.

Clermont.

Clermont mine, and also Instanter mines, 1 and 2, operated by the Buffalo Coal Company, were shut down in the summer on account of poor trade, but it is hoped they will again commence work in the spring.

Williamsport.

This mine, located at Tyler station, on the Low Grade railroad, has also been shut down the past year.

LIST OF ACCIDENTS.

ACCIDENT No. 1.—At Arnot mines, Frederick Jenkins had his leg broken by a fall of coal, November 1, 1884.

ACCIDENT No. 2.—William Huggan, aged thirty-eight, married, and employed at Carbon Run mines, No. 3, was killed by a fall of roof, while engaged in drawing pillars with two other miners. On the afternoon of the day in question, a sudden squeeze came on, breaking the props and the band of slate underlying the rock, and before deceased could get out he was caught by the slate and buried. His death was due to suffocation. Deceased was a careful and steady miner, and had been employed in the mines belonging to this company for the past eleven years. A wife and three children are left to mourn his loss.

ACCIDENT No. 3.—Robert Small, aged forty-two, and married, was killed in the north drift Arnot, November 22, 1884, by a fall of fire-clay and coal. Small, in company with his boy and two other miners, was pulling back gangway pillars, and he had put in a mining across the face, but had neglected to pull down the band of fire-clay, which was five inches in thick-

ness, and was hanging four feet back from the face. He commenced to drill a hole in the coal, standing under the fire-clay while doing so. He had not drilled very much before the band of fire-clay and two feet of the coal fell upon him. He was removed as soon as possible, but died while being carried home.

Accident No. 4.—John Nelson, a Swede, fifty one years old, and employed in No. 2 mine, Fall Brook, was killed by a fall of coal early on the morning of December 1, 1884. On the Saturday previous, he had made a deep undermining, and had failed to sprag the coal, and on Monday morning he went to work at three o'clock in company with his boy, and immediately went to work under the undermined coal, and while at work the coal fell upon him from a clay slip, killing him instantly. Two men, who were bailing water in the heading below, heard the boy's screams, and went immediately and got him out, but he was dead. He leaves a wife and three children.

Accident No. 5.—George Tornada, a Hungarian, nineteen years of age, was killed, December 15, 1884, in No. 1 mine, Antrim. Tornada, in company with another man, was engaged in pulling back a pillar, and had mined a piece of coal next to the gob side of the pillar, and had been wedging a short time previous, but had failed to bring down the band of top coal. Then he lay down and commenced to mine deeper, and while so doing a piece of coal fell from the top bench, and, striking him on the temple, killed him instantly. There was a little squeeze on the pillar at the time, and the deceased, in his ignorance, did not understand the danger he was in in leaving up any of the top bench of coal, and hence the above result.

Accident No. 6.—John B. Jones, fifty-two years old, was killed in Long Valley mine, December 23, 1884, by a fall of coal. He was at work in a loose end room, and the coal was about six feet in thickness, and he was mining at the loose end of the place, and must have been under for a distance of six feet, and, although he had three sprags under the coal he was mining, a portion of the coal fell from between two slips upon him. His boy, who was at work with him, tried to release him, but could not, and got help as soon as possible, but he was dead when he was taken from under the coal. He leaves a wife and four children.

Accident No. 7.—Alexander White was slightly injured by a fall of coal in Arnot mine, January 23, 1885.

Accident No. 8.—John C. Maloney, employed as engineer in No. 1 mine, Antrim, was burned about face and leg.

Accident No. 9.—John Lovell, a boy, employed in Beechtree mine, had his arm broken in jumping off a train of empty mine wagons, February 12.

Accident No. 10.—Andrew Carlson, employe l in Bucktail mine, had his back broken by a fall of slate, and, although this occurred March 24, he lived until near the middle of April.

ACCIDENT No. 11.—Francis Whinney, employed in Bucktail mine, was burned with powder while drilling out a missed shot, April 28.

ACCIDENT No. 12.—Barcilia Ayell, employed in No. 2 mine, Walston, was killed by a fall of slate, July 15

ACCIDENT No. 13.—David Watkins, employed in Antrim mine, had his collar bone broken by a fall of stone, August 27.

ACCIDENT No. 14.—E. M. Johnson, employed in Antrim mine, had his collar-bone broken by being thrown from a mine car, September 1.

ACCIDENT No. 15.—Stephen Morgan, aged fourteen, employed as a door-tender in Walston mine, No. 2, was killed, September 8. He had left his door and gone with the driver up the heading. He took the mule and went to fetch a loaded car that was standing in the heading, and, as the mule started up, he fell in front of the loaded car and was crushed.

ACCIDENT No. 16.—Benjamin Roberts, employed in Arnot mine, was hurt about chest and abdomen by a fall of coal, October 7.

ACCIDENT No. 17.—L. J. Sach, employed in Arnot mine, was hurt very severely about head and shoulders by a fall of coal, October 8.

ACCIDENT No. 18.—David McAuliff, aged forty-five, and employed in No. 4 mine, Barclay, was killed by a fall of coal, while bringing back a pillar, November 30. Deceased, in company with his boy, was engaged in cutting through the pillar, and had his place mined across, and had fired a shot on the fast side, which failed to bring down the coal. He then lay down under the loose end of the coal so as to mine it a little deeper, and to loosen it, and while so doing, the coal fell upon him, crushing him internally and breaking both legs. He lived three hours after being taken out, and leaves a wife and six children to mourn his loss.

TABLE I.—*Showing location of collieries in the Fourth Bituminous Mine District.*

Name of Colliery.	Name of Operator.	Location—County.	Name of Superintendent.	Post-Office Address.
Antrim. Nos. 1, 2, and 3,	Fall Brook Coal Company,	Tioga,	Anton Hardt,	Corning, N. Y.
Arnot, Nos. 1, 2, and 3,	Blossburg Coal Company,	do.	Henry J. Landrus,	Arnot, Tioga county.
Barclay, Nos. 1, 2, 3, and 4,	Towanda Coal Company,	Bradford,	Frank F. Lyon,	Barclay, Bradford county.
Beechtree, Nos. 1 and 2,	Rochester and Pittsburgh Iron and Coal Co.,	Jefferson,	John H. Bell,	Beechtree, Jefferson county.
Bucktail,	North-Western Mining and Exchange Company,	Elk,	David Robertson,	Dagus Mines, Elk county.
Cameron,	Cameron Coal Company,	Cameron,	John Morris,	Cameron, Cameron county.
Cascade,	Kaul & Hall,	Elk,	Andrew Kaul,	St. Mary's, Elk county.
Clarion,	North-Western Mining and Exchange Company,	Jefferson,	David Robertson,	Dagus Mines, Elk county.
Clermont,	Buffalo Coal Company,	McKean,	J. H. Tate,	Clermont, McKean county.
Coal Glen,	Jefferson Coal Company,	Jefferson,	Austin Blakeslee,	Beechtree, Jefferson county.
Dagus Mines, Nos. 1 to 22,	North-Western Mining and Exchange Company,	Elk,	David Robertson,	Dagus Mines, Elk county.
Dixon Mine,	H. C. Springer & Co.,	Clearfield,	H. C. Springer,	DuBois, Clearfield county.
Eureka Slope,	Daniel Eldridge,	Elk,	Daniel Eldridge,	Scott's Block, Erie, Erie county.
Fall Brook,	Fall Brook Coal Company,	Tioga,	Anton Hardt,	Corning, N. Y.
Fall Creek,	Fall Creek Coal Company,	Bradford,	W. M. Mallory,	Towanda, Bradford county.
Gaines, Nos. 1 and 2,	Gaines Coal and Coke Company,	Tioga,	P. A. Jordan,	Gurnee, Tioga county.
Hamilton,	Powers, Brown & Co.,	Jefferson,	George Mellinger,	Reynoldsville, Jefferson county.
Hildrup.				
Instanter, Nos. 1 and 2,	Buffalo Coal Company,	McKean,	J. H. Tate,	Clermont, McKean county.
Long Valley,	Long Valley Coal Company,	Bradford,	E. O. Macfarlane,	Towanda, Bradford county.
Morris Run, Nos. 1, 2, and 3,	Morris Run Coal Mining Company,	Tioga,	W. S. Nearing,	Morris Run, Tioga county.
Pleasant Valley,	Powers, Brown & Co.,	Jefferson,	George Mellinger,	Reynoldsville, Jefferson county.
Renovo Mines,		Clinton.		
Rochester Mine,	Bell, Lewis & Yates,	Clearfield,	S. B. Elliott,	DuBois, Clearfield county.
Sprague Mine,	Powers, Brown & Co.,	Jefferson,	George Mellinger,	Reynoldsville, Jefferson county.
Soldier Run,	do. do.	do.	do.	do. do.
St. Mary's, Nos. 1, 2, and 3,	St. Mary's Coal Company,	Elk,	Joseph Eddy,	St. Mary's, Elk county.
Tannerdale,	do. do.	do.	do.	do. do.
Walston, Nos. 1 and 2,	Rochester & Pittsburgh Iron and Coal Co.,	Jefferson,	John McLeavy,	Punxsutawney, Jefferson county.
Williamsport,	Williamsport Coal Company,	Clearfield.		

TABLE II.—*Showing character of coal, production, number of employés, days employed, casualties, &c., in the Fourth Bituminous Mine District.*

COLLIERIES.	Operators.	Character of coal. (Anthracite or Semi-Anthracite, Bituminous or Semi-Bituminous.)	Drift, slope, or shaft.	Number of inside workmen.	Number of outside workmen.	Total employees.	Number of days worked inside.	Number of days worked outside.	Number of horses and mules.	PRODUCTION.		CASUALTIES.				
										Number of tons produced.	Number of tons shipped.	Killed inside.	Killed outside.	Injured inside.	Injured outside.	Total killed and injured.
Antrim, Nos. 1, 2, and 3,	Fall Brook Coal Company,	Semi-bituminous,	S. and D.	530	120	650	224		45	273,773		1		4		5
Arnot, Nos. 1, 2, and 3,	Blossburg Coal Company,	"	Drift,	650	140	790	220		85	275,000		1		4		5
Barclay, Nos. 1, 2, 3, and 4,	Towanda Coal Company,	"	"	350	55	405	266		45	201,000		1				1
Beechtree, Nos. 1 and 2,	Rochester and Pitts. Iron and Coal Co.,	Bituminous,	"	190	19	209	263		17	143,921				1		1
*Bucktail,	North-Western Mining and Exchange Co.	"	"											2		2
Carbon Run,	Schraeder Coal Company,	"	"									1				1
Cameron,	Cameron Coal Company,	"	"	12	6	18	200		5	7,601						
Cascade,	Kaul & Hall,	"	"													
Clermont,	Buffalo Coal Company,	"	"	80	13	93	164			44,302						
Coal Glen,	Jefferson Coal Company,	"	"	54	8	62	200		5	28,563						
Dagus, Nos. 1, 2, and 3,	North-Western Mining and Exchange Co.	"	S. and D.	492	173	665	232		32	365,478						
Dixon Mine,	H. C. Springer & Co.,	"	Drift,	60	6	66	142		6	27,854						
Eureka Slope,	Daniel Eldridge,	"	Slope,	68	6	74	148		3	29,500						
Fall Brook, Nos. 1 and 2,	Fall Brook Coal Company,	Semi-bituminous,	Drift,	210	50	260	210		23	110,879		1				1
Fall Creek,	Fall Creek Coal Company,	"	"													
Gaines, Nos. 1 and 2,	Gaines Coal and Coke Company,	"	"	53	10	63	173		2	31,600						
Hamilton,	Powers, Brown & Co.,	Bituminous,	"													
Hildrup,																
Instanter,	Buffalo Coal Company,	Bituminous,	Drift,													
Long Valley,	Long Valley Coal Company,	Semi-bituminous,	"	120	30	150	190		20	48,814		1				1
Morris Run, Nos. 1, 2, and 3,	Morris Run Coal Mining Company,	"	S. and D.	565	108	673	224		80	375,474						
Pleasant Valley,	Powers, Brown & Co.,	Bituminous,	Drift,													
Rochester Mine,	Bell, Lewis & Yates,	"	"	550	40	590	270		35	403,062						
Sprague,	Powers, Brown & Co.,	"	"													
Soldier Run,	" "	"	"													
St. Mary's, Nos. 1, 2, and 3,	St. Mary's Coal Company,	"	"	90	14	94	216		6	67,200						
Tannerdale,	"	"	"													
Walstou, Nos. 1 and 2,	Rochester and Pitts. Iron and Coal Co.,	"	"	338	100	438	313		31	300,000		2				2
Williamsport,	Williamsport Coal Company,	"	"													

*Bucktail mine production, men, mules, &c., are included with Dagus mines.

TABLE III —*Showing methods of ventilation, size of fans and furnaces, size of inlets and outlets, number of headings, number of openings, and the air measurements taken at the collieries in the Fourth Bituminous Mine District.*

Collieries.	Ventilation—Natural, Furnace, or Fan.	Number of openings.	Diameter of fan in feet.	Size of furnace in feet.	Size of inlet in square feet.	Size of outlet in square feet.	Number of headings.
Antrim, Nos. 1 and 2,	Fan,	3	8		42	48	10
Antrim, No. 3,	Furnace,	2		6x9	40	37	2
Arnot, No. 1,	Furnace,	2		5x6	42	27	2
Arnot, Nos. 2 and 3,	Fan,	3	20		100	100	14
Barclay, No. 1,					72	100	
Barclay, No. 2,	Furnace,	2		5x7	99	92	2
Barclay, No. 3,	Furnace,	2		5x7	100	40	4
Barclay, No. 4,		2		5x7	40	40	2
Beechtree, No. 1,	Fan,	3	6		80	60	6
Beechtree, No. 2,	Fan,	2	6		80	60	7
Bucktail,	Furnace,	3		8x4	33	40	3
Brock Mine,	Fan,	2	6		63	63	2
Cameron,	Natural,	2			30	30	2
Cascade, Nos. 1 and 2,	Furnace,	3		6x4	30	30	4
Clermont,	Furnace,	2		4x3	38	29	
Coal Glen,	Fan,	2	6		54	40	5
Dagus, No. 1,	Fan,	3	16		60	50	4
Dagus, Nos. 7 and 8,	Furnace,	3		4x7	36	30	2
Dagus, No. 11,	Fan,	2	16		36	35	1
Dagus, Nos. 13, 14, 15, 16, and 17,	Furnace,	2		4x8	36	36	4
Dagus, No. 20,	Furnace,	2		6x8	36	48	3
Dagus, No. 21,	Furnace,	2		6x8	42	24	2
Dixon Mine,	Furnace,	2		6x8	50	50	2
Eureka Slope,	Furnace,	2		6x4	42	30	2
Fall Brook, No. 1,	Furnace,	2		5x9	30	30	4
Fall Brook, No. 2,	Furnace,	2		6x9	60	35	2
Gaines, Nos. 1 and 2,	Furnace,	3		4x6	40	30	3
Hamilton,	Furnace,	3		4x6	40	30	4
Instanter, No. 1,	Furnace,	2		4x4	40	30	4
Instanter, No. 2,	Furnace,	2		7x5	38	27	2
Long Valley,	Furnace,	2		6x9	100	40	3
Morris Run, No. 1,	Furnace,	2		5x7	90	70	
Morris Run, No. 2,	Furnace,	2		6x8	100	66	10
Morris Run, No. 3,	Furnace,	2		8x12	95	60	8
Pleasant Valley,	Furnace,	2		6x4	56	30	4
Rochester Mine,	Fan,	3	6		180	63	6
Sprague,	Furnace,	2		6x5	80	48	2
Soldier Run,	Furnace,	2		6x4	35	35	2
St. Mary's, No. 1,	Furnace,	2		5x4	48	48	2
St. Mary's, No. 2,	Furnace,	2		5x4	48	48	2
St. Mary's, No. 3,	Furnace,	2		5x4	48	48	2
Tannerdale,	Furnace,	2		4x3	42	24	2
Walston, No. 1,	Fan,	2	8		60	40	4
Walston, No. 2,	Fan,	2	8		60	40	4
Williamsport,	Furnace,	2		4x8	36	21	

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	NOVEMBER—1884.						DECEMBER—1884.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Antrim, No. 1,	300	21,000	400	16,000	1,150	46,000	300	21,600	400	16,000	1,150	46,000
Antrim, No. 2,	200	7,000	. . .	. . . .	300	8,100	200	7,000	. . .	. . . .	300	8,100
Antrim, No. 3,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Arnot, No. 1,	1,350	99,650	420	18,900	1,450	108,750	1,210	95,400	425	18,000	1,450	108,700
Arnot, No. 2,	450	15,750	. . .	. . . .	550	16,500	450	14,000	. . .	. . . .	500	18,000
Arnot, No. 3,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Barclay, No. 1,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Barclay, No. 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Barclay, No. 3,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Barclay, No. 4,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Bennington,	372	15,100	55	2,100	313	15,100	370	15,000	54	2,000	314	15,200
Benedict,	. . .	. . . .	. . .	. . . .	. . .	. . . .	300	10,800	70	1,120	200	7,200
Bernice, No. 1,	200	12,000	50	2,500	235	9,400	180	10,800	45	2,250	248	9,280
Bernice, No. 2,	190	11,400	. . .	. . . .	200	10,000	190	11,400	. . .	. . . .	220	11,000
Black Diamond,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Carbon Run, No. 1,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Carbon Run, No. 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Carbon Run, No. 3,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Carbon Mines, No. 1,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Carbon Mines, No. 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Fall Brook, No. 1,	370	11,000	360	8,640	360	10,800	365	10,950	390	9,350	350	10,500
Fall Brook, No. 2,	240	14,400	395	9,480	370	12,950	230	13,800	380	9,120	350	12,250
Fisher,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Glen White,	175	6,300	75	3,000	300	6,600	180	6,480	75	3,000	305	6,600
Gaines, No. 1,	. . .	. . . .	. . .	. . . .	. . .	. . . .	132	5,544	110	2,200	330	10,890
Gaines, No. 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	88	4,424	121	2,420	. . .	. . . .
Horse Shoe,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Juniata,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Long Valley,	220	18,480	200	9,600	230	10,800	230	19,600	200	9,600	320	17,280
Morris Run, No. 1,	400	35,200	145	6,970	780	36,240	420	28,000	150	6,700	740	34,600
Morris Run, No. 2,	420	32,600	160	7,200	820	34,200	410	29,600	155	6,975	720	32,400
Morris Run, No. 3,	380	28,300	155	6,975	840	32,400	400	26,500	150	7,200	760	28,900
Moredale,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Mitchell Mine,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Minersville,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Ocean Mine,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Porter Shaft,	390	11,700	. . .	. . . .	230	10,200	. . .	. . . .	. . .	. . . .	. . .	. . . .
Phœnix,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Robertsdale, No. 1,	360	21,600	600	9,000	300	9,000	360	21,600	365	10,500	300	19,000
Robertsdale, No. 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Robertsdale, No. 3,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Renovo Mines,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Rush Mine,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Snow Shoe, No. 1,	500	18,000	250	8,000	700	25,000	400	14,400	200	7,200	700	25,200
Snow Shoe, No. 2,	300	10,800	. . .	. . . .	500	18,000	400	12,200	100	3,600	500	18,000
Snow Shoe, No. 3,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Somerville,	250	12,500	170	7,200	420	16,800	300	12,000	100	3,600	550	18,500
Sterling, No. 3,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Tunnel Mines, No. 1,	210	23,100	180	10,800	450	27,000	190	20,900	200	12,000	430	25,800
Tunnel Mines, No. 2,	280	30,800	170	10,200	470	28,200	230	25,300	200	12,000	500	30,000
Tunnel Mines, No. 3,	250	27,500	210	12,600	500	30,000	210	23,100	180	10,800	450	27,000
Tunnel Mines, No. 4,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Thomas Mine,	370	11,100	260	10,400	800	18,000	360	10,800	200	8,000	290	17,000

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

Name of Colliery.	January.						February.						March.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Antrim, No. 1,	300	21,600	400	16,000	1,150	46,000	300	31,600	400	16,000	1,150	46,000	300	21,600	400	16,000	1,200	48,000
Antrim, No. 2,	200	7,000	. . .	. . . .	300	8,100	200	7,000	. . .	. . . .	300	8,100	450	15,750	. . .	. . . .	600	18,000
Antrim, No. 3,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Arnot, No. 1,	900	95,600	450	20,250	1,450	108,750	1,400	100,260	420	18,900	1,500	112,500	1,410	102,000	425	19,125	1,500	112,000
Arnot, No. 2,	425	14,875	. . .	. . . .	575	17,250	430	15,050	. . .	. . . .	575	17,250	200	7,000	. . .	. . . .	300	8,000
Arnot, No. 3,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Barclay, No. 1,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	400	14,400	. . .	. . . .	450	18,000
Barclay, No. 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	300	20,200	. . .	. . . .	550	22,500
Barclay, No. 3,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	300	21,600	110	4,400	400	32,000
Barclay, No. 4,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	600	20,000	100	4,200	500	22,400
Bennington,	376	16,700	132	5,000	381	15,400	368	14,800	56	2,400	309	14,300	376	15,800	126	4,600	308	15,400
Benedict,	300	11,800	65	2,000	210	12,600	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Bernice, No. 1,	300	10,800	70	2,000	200	7,200	190	11,400	40	2,000	230	9,200	190	11,400	50	2,500	225	9,600
Bernice, No. 2,	200	12,000	190	10,000	250	12,600	200	12,000	. . .	. . . .	240	12,000	200	12,000	. . .	. . . .	230	11,300
Black Diamond,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Beechtree, No. 1,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Beechtree, No. 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Bucktail,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Brock Mine,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Carbon Mines, No. 1,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Carbon Mines, No. 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Cameron,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Cascade, No. 1,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Cascade, No. 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Clermont,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Coal Glen,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Dagus, No. 1,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Dagus, Nos. 7 and 8,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Dagus, No. 11,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Dagus, Nos. 13, 14, 15, 16, and 17,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Dagus, No. 20,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 21,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dixon Mine,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Eureka Slope,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Fall Brook, No. 1,	380	11,400	390	9,350	370	11,100	370	11,100	330	9,180	365	10,950	375	11,500	370	8,880	360	10,500
Fall Brook, No. 2,	240	14,400	380	9,480	375	13,125	235	14,100	385	9,240	370	12,950	240	14,400	390	9,350	350	12,250
Fisher,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Glen White,	175	6,300	65	2,600	310	6,800	160	6,480	80	3,200	295	6,490	. . .	. . .	. . .	. . .	. . .	. . .
Gaines, No. 1,	110	4,620	99	1,180	352	11,616	110	4,620	88	1,760	495	16,335	110	4,620	88	1,760	486	11,617
Gaines, No. 2,	121	5,808	198	3,960	. . .	. . .	99	4,752	110	2,200	. . .	. . .	120	5,808	121	2,420	. . .	. . .
Horse Shoe, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Horse Shoe, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Hamilton,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Instanter, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Instanter, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Juniata,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Long Valley,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Morris Run, No. 1,	435	33,150	155	6,975	860	41,920	435	32,450	150	6,775	860	36,760	435	29,600	150	6,200	810	31,200
Morris Run, No. 2,	440	29,600	160	7,200	865	35,600	440	29,670	160	6,925	850	34,700	440	32,500	155	6,975	820	35,250
Morris Run, No. 3,	440	37,600	150	6,750	870	38,200	430	36,300	160	7,200	865	38,700	430	27,600	160	7,200	825	30,200
Moredale,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Minersville,	450	17,250	130	5,850	420	26,580	240	11,760	130	5,850	425	21,315	. . .	. . .	. . .	. . .	. . .	. . .
Mitchel Mine,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Ocean Mine,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Porter Shaft,	325	14,000	. . .	. . .	400	12,000	325	13,400	. . .	. . .	400	13,600	. . .	. . .	. . .	. . .	. . .	. . .
Phœnix,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Pleasant Valley,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Robertsdale, No. 1,	500	18,000	800	14,400	740	18,400	600	21,600	600	10,800	320	20,600	400	14,400	500	9,000	700	17,000
Robertsdale, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	500	9,000	500	4,000	400	9,600	600	10,800	550	9,500	450	11,250
Robertsdale, No. 3,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

Renovo Mines,																		
Rush Mine,																		
Rochester Mine,																		
Snow Shoe, No. 1,	500	18,000	260	9,360	620	22,320	450	16,200	220	7,920	500	18,000	420	15,120	220	7,970	500	18,800
Snow Shoe, No. 2,	400	14,400	100	3,600	600	21,600	400	14,400	150	5,400	600	21,600	400	14,400			600	21,000
Snow Shoe, No. 3,																		
Somerville,																		
Sterling, No. 3,																		
Sprague,																		
Soldier Run,																		
St. Mary's, No. 1,																		
St. Mary's, No. 2,																		
St. Mary's, No. 3,																		
Tunnel Mines, No. 1,	210	23,100	180	10,800	400	24,000	210	23,100	190	11,400	430	25,800	150	16,500	180	10,800	450	27,000
Tunnel Mines, No. 2,	220	24,200	200	12,000	475	28,500	280	30,300	210	12,600	600	36,000	200	22,000	200	12,000	500	30,000
Tunnel Mines, No. 3,	240	26,400	220	13,200	470	28,200	220	24,200	200	12,000	500	30,000	280	30,800	160	9,600	540	32,400
Tunnel Mines, No. 4,																		
Thomas Mine,													350	12,150	250	6,800	200	12,000
Tannerdale,																		
Walston, No. 1,																		
Walston, No. 2,																		
Williamsport,																		

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	APRIL.						MAY.						JUNE.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Antrim, No. 1,	300	21,600	400	16,000	1,200	48,000	300	21,600	400	16,000	1,200	48,000	300	21,600	400	16,000	1,200	48,000
Antrim, No. 2,	200	7,000	. . .	. . .	300	8,100	200	7,000	. . .	. . .	300	8,100	200	7,000	. . .	. . .	300	8,100
Antrim, No. 3,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Arnot, No. 1,	1,310	103,200	400	18,000	1,500	108,700	1,210	102,600	440	18,000	1,500	112,700	. . .	. . .	. . .	. . .	. . .	. . .
Arnot, No. 2,	450	15,750	. . .	. . .	540	16,700	475	16,625	. . .	. . .	580	17,400	. . .	. . .	. . .	. . .	. . .	. . .
Arnot, No. 3,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Barclay, No. 1,	372	15,000	127	4,800	308	15,400	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Barclay, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Barclay, No. 3,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Barclay, No. 4,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Bennington,	. . .	. . .	. . .	. . .	. . .	. . .	377	16,000	128	4,900	128	17,400	. . .	. . .	. . .	. . .	. . .	. . .
Benedict,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Bernice, No. 1,	180	10,800	50	2,500	250	9,000	180	10,800	30	1,500	230	9,200	190	11,400	40	2,000	270	9,600
Bernice, No. 2,	190	11,400	. . .	. . .	240	12,000	180	10,800	30	1,500	230	9,200	180	10,800	. . .	. . .	245	12,250
Black Diamond,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Beechtree, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Beechtree, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Bucktail,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Brock Mine,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Carbon Mines, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Carbon Mines, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Cameron,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Cascade, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Cascade, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Clermont,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Coal Glen,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, Nos. 7 and 8,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 11,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, Nos. 13, 14, 15, 16, and 17,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dagus, No. 20,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

Dagus, No. 21,																		
Dixon Mine,																		
Eureka Slope,																		
Fall Brook, No. 1,	370	11,100	360	10,800	370	12,200												
Fall Brook, No. 2,	230	13,800	380	9,120	376	12,600												
Fisher,																		
Glen White,	175	6,300	80	3,200	295	6,400	176	6,300	75	3,000	285	6,270	170	6,120	70	2,800	280	6,160
Gaines, No. 1,	165	6,950	110	2,200	396	13,064	110	4,620	90	1,800	264	8,712						
Gaines, No. 2,	99	4,752	121	2,420			132	4,224	70	1,540								
Horse Shoe, No. 1,																		
Horse Shoe, No. 2,																		
Hamilton,																		
Instanter, No. 1,																		
Instanter, No. 2,																		
Juniata,																		
Long Valley,																		
Morris Run, No. 1,	435	29,150	160	7,200	765	35,200	435	37,600	160	7,200	860	42,600	439	29,150	150	7,400	810	31,200
Morris Run, No. 2,	440	38,000	150	6,975	730	39,600	440	29,600	150	6,975	800	33,670	440	28,700	145	7,600	760	32,500
Morris Run, No. 3,	420	27,000	160	7,200	800	32,200	410	27,500	140	6,400	820	32,400	430	37,600	160	7,200	865	42,300
Moredale,																		
Minersville,																		
Mitchell Mine,																		
Ocean Mine,																		
Porter Shaft,	450	9,000			400	10,000	400	9,600			350	10,500	400	10,000			325	10,750
Phœnix,																		
Pleasant Valley,																		
Robertsdale, No. 1,	700	25,200	400	16,000	500	18,000	600	21,600	350	14,000	550	19,800						
Robertsdale, No. 2,	300	7,200	300	5,400	300	6,300	350	12,600	300	7,500	500	12,500						
Robertsdale, No. 3,																		
Renovo Mines,																		
Rush Mine,																		
Rochester Mine,																		
Snow Shoe, No. 1,	400	14,400	220	7,920	500	18,000	350	12,600			500	18,000	450	16,200	220	7,720	600	21,600
Snow Shoe, No. 2,	400	14,200			600	21,000	400	18,000	250	9,000	550	19,800	300	10,800			380	20,880
Snow Shoe, No. 3,																		
Somerville,																		
Sterling, No. 3,																		
Sprague,																		
Soldier Run,																		
St. Mary's, No. 1,																		
St. Mary's, No. 2,																		
St. Mary's, No. 3,																		
Tunnel Mines, No. 1,	125	19,250	170	10,200	450	27,000	210	23,100	190	11,400	400	24,000	160	17,600	170	10,200	350	21,000
Tunnel Mines, No. 2,	200	22,000	180	10,800	400	24,000	240	26,400	200	12,000	500	30,000	190	20,900	160	9,600	390	23,400
Tunnel Mines, No 3,	156	17,600	140	8,160	350	21,000	200	22,000	180	10,800	440	26,400	200	22,000	180	10,800	410	24,600
Tunnel Mines, No. 4,																		
Thomas Mine,	300	11,200	230	7,600	210	12,600												
Tannerdale,																		
Walston, No. 1,																		
Walston, No. 2,																		
Williamsport,																		

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

Name of Colliery.	July.						August.						September.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Antrim, No. 1,																		
Antrim, No. 2,																		
Antrim, No. 3,																		
Arnot, No. 1,																		
Arnot, No. 2,																		
Arnot, No. 3,																		
Barclay, No. 1,																		
Barclay, No. 2,																		
Barclay, No. 3,																		
Barclay, No. 4,																		
Bennington,																		
Benedict,																		
Bernice, No. 1,																		
Bernice, No. 2,																		
Black Diamond,																		
Beechtree, No. 1,																		
Beechtree, No. 2,																		
Bucktail,																		
Brock Mine,																		
Carbon Mines, No. 1,																		
Carbon Mines, No. 2,																		
Cameron,																		
Cascade, No. 1,																		
Cascade, No. 2,																		
Clermont,																		
Coal Glen,																		
Dagus, No. 1,																		
Dagus, Nos. 7 and 8,																		
Dagus, No. 11,																		
Dagus, Nos. 13, 14, 15, 16, and 17,																		
Dagus, No. 20,																		

Dagus, No. 21,
Dixon Mine,
Eureka Slope,
Fall Brook, No. 1,
Fall Brook, No. 2,
Fisher,
Glen White,
Gaines, No. 1,
Gaines, No. 2,
Horse Shoe, No. 1,
Horse Shoe, No. 2,
Hamilton,
Instanter, No. 1,
Instanter, No. 2,
Juniata,
Long Valley,
Morris Run, No. 1,
Morris Run, No. 2,
Morris Run, No. 3,
Moredale,
Minersville,
Mitchell Mine,
Ocean Mine,
Porter Shaft,
Phenix,
Pleasant Valley,
Robertsdale, No. 1,
Robertsdale, No. 2,
Robertsdale, No. 3,
Renovo Mines,
Rush Mine,
Rochester Mine,
Snow Shoe, No. 1,
Snow Shoe, No. 2,
Snow Shoe, No. 3,
Somerville,
Sterling, No. 3,
Sprague,
Soldier Run,
St. Mary's, No. 1,
St. Mary's, No. 2,
St. Mary's, No. 3,
Tunnel Mines, No. 1,
Tunnel Mines, No. 2,
Tunnel Mines, No. 3,
Tunnel Mines, No. 4,
Thomas Mine,
Tannerdale,
Walston, No. 1,
Walston, No. 2,
Williamsport,

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	OCTOBER.						NOVEMBER.						DECEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Antrim, Nos. 1 and 2,	300	21,600	400	16,000	1,200	48,000	300	21,600	300	12,000	1,150	4,600	400	28,000	300	12,000	1,200	48,000
Antrim, No. 3,	200	7,000	. . .	. . . .	300	8,100	200	7,000	. . .	. . . .	300	8,100	200	7,000	. . .	. . . .	300	8,100
Arnot, No. 1,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Arnot, Nos. 2 and 3,	1,300	101,940	420	18,700	1,450	108,750	1,310	10,650	420	18,700	1,400	10,700	1,300	101,940	400	18,000	1,450	108,750
Barclay, No. 1,	300	10,800	. . .	. . . .	. . .	. . . .	300	10,800	. . .	. . . .	. . .	. . . .	250	9,000	. . .	. . . .	. . .	. . . .
Barclay, No. 2,	190	13,680	. . .	. . . .	. . .	. . . .	190	13,680	. . .	. . . .	. . .	. . . .	305	21,960	. . .	. . . .	. . .	. . . .
Barclay, No. 3,	200	14,400	. .	. . . .	190	15,200	200	14,400	. . .	. . . .	190	15,200	300	21,600	. . .	. . . .	200	16,000
Barclay, No. 4,	250	13,500	. . .	. . . .	. . .	. .	250	13,500	. . .	. . . .	. .	. . . .	250	13,500	. . .	. . . .	. . .	. . . .
Bennington,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Benedict,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Bernice, No. 1,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Bernice, No. 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Black Diamond,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Beechtree, No. 1,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Beechtree, No. 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Bucktail,	260	9,360	160	3,840	280	11,200	250	9,000	300	1,050	270	10,800	240	8,640	100	2,400	240	9,600
Brock Mine,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Carbon Mines, No. 1,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Carbon Mines, No. 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Cameron,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Cascade, Nos. 1 and 2,	160	6,930	180	3,300	320	6,400	170	7,100	182	3,400	325	6,500	180	7,780	114	2,610	330	6,600
Clermont,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Coal Glen,	750	27,000	. . .	. . . .	439	26,779	810	29,160	. . .	. . . .	489	29,829	439	26,779	. . .	. . . .	470	28,670
Dagus, No. 1,	290	11,600	340	8,160	400	11,200	300	12,000	380	9,120	400	11,200	240	8,640	110	2,640	250	10,000
Dagus, Nos. 7 and 8,	180	6,480	140	4,900	250	7,500	170	6,120	125	4,375	220	6,600	140	5,040	120	4,200	200	6,000
Dagus, No. 11,	250	9,000	180	6,300	280	9,800	190	6,840	. . .	. . . .	220	7,700	200	7,200	. . .	. . . .	210	7,350
Dagus, Nos. 13, 14, 15, 16, and 17,	320	11,200	90	3,600	360	12,960	330	12,200	65	2,500	470	16,290	320,	11,200	60	2,400	440	15,840
Dagus, No. 20,	485	17,450	475	13,300	430	20,640	520	18,720	435	12,180	350	16,800	570	20,520	505	14,140	430	20,640
Dagus, No. 21,	290	12,150	355	8,520	390	9,360	220	9,240	320	7,680	390	9,360	285	11,970	305	7,320	420	10,080
Dixon Mine,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Eureka Slope,	200	9,600	170	4,690	210	10,500	220	10,560	150	4,070	210	10,500	225	11,200	170	4,690	210	10,500

Fall Brook, No 1,	370	11,100	390	9,120	360	10,800	375	11,250	380	9,120	350	10,500	380	11,400	390	9,350	355	10,650
Fall Brook, No. 2,	240	14,400	375	9,000	370	12,925	240	14,400	390	9,350	360	12,600	350	15,000	395	9,480	375	13,125
Fisher,																		
Glen White,																		
Gaines, Nos. 1 and 2,	243	11,280	125	2,400	374	11,253	240	11,000	130	2,470	360	11,100	230	11,500	126	2,410	350	10,900
Horse Shoe, No. 1,																		
Horse Shoe, No. 2,																		
Hamilton,	300	12,000	160	4,000	315	12,600	310	12,400	85	4,080	315	12,600	300	12,000	120	4,800	485	14,550
Instanter, No. 1,																		
Instanter, No. 2,																		
Juniata,																		
Long Valley,	210	19,500	160	9,600	210	22,000	200	19,200	200	12,000	190	19,000	210	20,160	190	11,400	260	26,000
Morris Run, No. 1,	420	22,000	160	7,200	450	23,000	410	21,600	150	70,100	450	23,000	435	29,150	160	7,200	450	23,000
Morris Run, No. 2,	440	25,600	155	6,900	400	27,000	442	25,800	145	6,200	410	27,500	440	26,100	150	7,010	400	27,000
Morris Run, No. 3,	450	28,200	160	6,775	420	27,500	440	27,800	155	6,700	420	27,500	400	25,000	140	6,000	410	26,000
Moredale,																		
Minersville,																		
Mitchell Mine,																		
Ocean Mine,																		
Porter Shaft,																		
Phœnix,																		
Pleasant Valley,	285	15,960	367	15,414	453	15,855												
Robertsdale, No. 1,																		
Robertsdale, No. 2,																		
Robertsdale, No 3,																		
Renovo Mines,																		
Rush Mine,																		
Rochester Mine,	260	47,500	210	8,100	1,000	63,000	250	45,000	180	3,610	1,050	66,150	255	46,200	205	7,175	1,180	74,340
Snow Shoe, No. 1,																		
Snow Shoe, No. 2,																		
Snow Shoe, No. 3,																		
Somerville,																		
Sterling, No. 3,																		
Sprague,																		
Soldier Run,	190	7,840	115	5,220	465	11,160	200	7,000	110	5,280	340	10,880	190	7,840	190	9,120	420	10,080
St. Mary's, No. 1,	133	12,600	100	3,000	340	13,200	130	12,000	100	3,000	310	13,000	133	12,600	80	7,600	300	14,400
St. Mary's, No. 2,	130	12,000	110	7,800	310	13,000	133	12,600	110	7,800	340	13,200	130	12,000	100	8,000	310	13,000
St. Mary's, No. 3,	136	12,500	120	7,900	320	13,200	136	5,976	100	8,000	320	13,200	136	5,976	110	7,800	320	13,100
Tunnel Mines, No. 1,																		
Tunnel Mines, No. 2,																		
Tunnel Mines, No. 3,																		
Tunnel Mines, No. 4,																		
Thomas Mine,																		
Tannerdale,	166	5,976	90	3,780	150	6,000	166	5,976	100	4,200	156	6,240	166	5,976	90	3,780	150	6,000
Walston, No. 1,																		
Walston, No. 2,																		
Williamsport,																		

TABLE IV.—LIST OF ACCIDENTS *occurring in the mines of the Fourth Bituminous Coal District of Pennsylvania for the year ending December 31, 1885.*

Date of accident.	NAME OF PERSON INJURED.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident.
1884.								
Nov. 1	Fred. Jenkins,				Arnot,	Tioga,		Leg broken by fall of coal.
Nov. 13	William Hnggan,	38	Married,	4	Carbon Run,	Bradford,	Nov. 14	Killed by fall of roof.
Nov. 22	Robert Small,	42	Married,	3	Arnot,	Tioga,	Nov. 23	Killed by fall of fire-clay and coal.
Dec. 1	John Wilson,	51	Married,	3	Fall Brook,	do.	Dec. 2	Killed by fall of coal.
Dec. 15	George Tomada,	19	Single,		Antrim,	do.	Dec. 16	Killed by fall of coal.
Dec. 23	John B. Jones,	52	Married,	4	Long Valley,	Bradford,	Dec. 24	Killed by fall of coal.
1885.								
Jan. 23	Alexander White,	28	Single,		Arnot,	Tioga,		Slightly injnred by fall of coal.
Jan. 28	John C. Maloney,	30	Married,		Antrim,	do.		Burned on face and leg.
Feb. 12	John Lovel,	12			Beech Tree,	Jefferson,		Arm broken by jnmping off empty mine wagons.
Mar. 24	Andrew Carlston,				Bucktail,	Elk,		Back broken by fall of slate; died in April.
April 28	Francis Whenney,				do.	Elk,		Burned with powder while drilling ont a missed shot.
Jnly 15	Barcilia Ayell,	30	Married,		Walston,	Jefferson,		Killed by fall of slate.
Ang. 27	David Watkins,	27	Married,		Antrim,	Tioga,		Collar-bone broken by fall of stone.
Sept. 1	E. M. Johnson,	29	Single,		do.	do.		Collar-bone broken.
Sept. 8	Stephen Morgan,	14			Walston,	Jefferson,		Killed; fell nnder loaded mine wagon.
Oct. 7	Benjamin Roberts,				Arnot,	Tioga,		Hurt about chest and abdomen by fall of coal.
Oct. 8	L. J. Sach,				do.	do.		Hurt about head and shonlders by fall of coal.
Nov. 30	David McAnliff,	45	Married,	6	Barclay,	Bradford,		Killed by fall of coal.

TABLE V.—*Showing the grand total of employés, horses, mules, engines, pumps, boilers, and powder employed, tons of coal mined and shipped, fatal and non-fatal accidents, &c., in the Fourth Mine District for the year ending December 31, 1885.*

Names of Counties, and Parts of Counties in the District.	Total number of men employed.	Total number of boys employed.	Total number of horses and mules employed.	Total number of engines and pumps employed.	Total number of boilers employed.	Total number of kegs of powder consumed.	Total number of tons of coal produced.	Total number of tons of coal shipped.	Total number of fatal accidents.	Total number of non-fatal accidents.	Total number of times air measurements were taken.
Bradford,	800	.....	65	1	1	.....	249,814	.....	3		
Cameron,	18	.....	5	.....	.....	.....	7,601				
Clearfield,	656	.....	41	2	2	.....	430,916				
Clinton,											
Elk,	903	.....	53	2	2	.....	502,178	.....	.....	2	
Jefferson,	851	.....	75	4	4	.....	572,484	.....	2	1	
Lycoming,											
McKean,	93	.....	13	.....	.....	.....	44,302				
Potter,											
Tioga,	2,436	.....	240	8	12	.....	1,066,726	.....	3	7	

FIFTH DISTRICT.

To the Honorable J. SIMPSON AFRICA, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania:*

SIR: I herewith submit my part annual report, commencing November 1, 1884, and ending the second Monday in May, 1885, when my term of office expired.

Nineteen accidents happened during that time in the inspection district, one in Bedford, and one in Somerset county, each fatal. Nine deaths occurred in Fayette county, and in the same county eight non-fatal accidents happened, and I am glad to report that no accidents from explosions have taken place.

I have given a description of the various mines visited during that time; in many of the mines in the district no report is given, they not having the lawful amount of persons employed, caused by the dullness of the trade that has prevailed during that time; and some valuable time was lost last spring visiting the mines on the Monongahela river, and revising the bituminous ventilation act.

Yours, very respectfully,

AUGUSTUS STINNER,
Ex-Inspector Fifth Bituminous District.

WILKINSBURG, *December 28, 1885.*

DESCRIPTION OF MINES.

Diamond.

I visited this mine on March 26, and found it well ventilated, dry, and and in a very satisfactory condition.

Painter.

Gave the mine one visit, and found it somewhat improved from my former examinations, so much that it was in pretty fair working order.

Valley.

Visited the mine once, and found it, with the improvements being made, in a first-class order.

Summit.

Visited the mine once; the mine has two openings, by which coal is hauled, and both openings are well ventilated, mainly No. 1; is in an excellent condition in every respect.

Eagle.

Visited the mine once, and found it fairly ventilated, and in general well taken care of.

Foundry.

Gave the mine one visit, found it not in the best condition, the mine being driven in a long distance, and apparently the furnace was neglected by not keeping sufficient fire in it.

Morgan.

On my only visit, found the mine rather badly ventilated, mainly in No. 9 heading, where some mines worked beyond the air, which work I ordered to be stopped, and it was complied with at once.

White.

This mine has two openings out of which coal is hauled, and I gave the mine one visit, (it having been idle for a long time,) but did not find it in as good a condition as it ought to be. While the furnace is a good one, and well constructed, its power is not sufficient for the long distance of the various air-courses.

Frick.

I visited this mine twice, and found it in very fair condition; the mine is kept very neat and clean.

Henry Clay.

By one examination I found this mine very fairly ventilated, and greatly improved since the time I paid it the first visit.

Tyrone.

Visited this mine once, and found plenty of air circulating in the various headings. From all appearances, it being a cold day in the month of January, the mine was ventilated by natural means.

Sterling.

Found on my visit this mine, as usual, in a very good and satisfactory condition; they were sinking an air-shaft in the second section of the mine, which will improve the ventilation considerably.

Jackson.

Visited the mine once, and found it well ventilated for the number of persons employed; is ventilated by natural means.

Clarissa.

Found this mine, on my only visit, in a very good condition regarding ventilation. The mine is well taken care of, the rooms are worked with regularity, and are well posted.

Fort Hill.

On my two visits found the mine in a very fair condition regarding ventilation, in having a great many of cross-headings driven for starting rooms, and in a few days will get another opening through the hill, which will be a good improvement to ventilation, this opening being a great deal higher than the other two openings. The mine is ventilated by natural means.

Connellsville Shaft.

Visited this mine once, and found it in satisfactory condition regarding ventilation.

Graee.

Visited this mine twice. The new built furnace is now in operation, and many improvements have been made, and are still going on.

Coal Brock.

Gave the mine a visit on the 6th of January, and found it well ventilated, and otherwise in a good condition.

Plummer.

On my two visits to this mine, December 16 and February 26, found the mine well ventilated, and otherwise well taken care of.

Trotter.

Visited the mine twice, and found it in the very best condition; the management of the mine is of the very best, and the mine is worked with considerable forethought. A 25-foot Guibal fan was erected early in the spring, which furnishes sufficient ventilation for all purposes. Shortly before my last visit, the rope had broken in the hoisting shaft, but no damage was done.

Leisenring, No. 1.

Examined the mine January 20. Is well ventilated, and well taken care of in every respect.

Leisenring, No. 2.

Visited the mine twice, on December 17 and April 17. Found the mine well ventilated, with no gas, nor indications of any, in any of the working places.

Wheeler.

Examined the mine twice, and found it in good order, regarding ventilation. As a precautionary measure, safety-lamps are still used for drawing pillars.

Morrell.

Examined this mine three times. It is very extensive. In general I found it in good condition. Several improvements have been made from time to time. Many parts of the mine are worked with safety-lamps, mainly in removing pillars.

Anchor.

Visited the mine on January 13, and found mine in very good order, except that in the traveling road man-holes and white-washing were needed.

Hill Farm.

Examined the mine on January 15 and March 24. Found mine in fair order, except on January 15, in the lower flat, second butt, miners worked beyond the air in rooms, for the reason, apparently, for the want of space.

Percy.

Visited the mine once, and found it in good condition, regarding ventilation; the traveling road, however, was neglected, the miners using the hoisting slope, which I gave strict orders should not be done.

Youngstown.

Examined the mines on January 7 and February 24, and on both visits found plenty of ventilation. A great deal of extra work has been done here since the explosion on October 27, 1884. Found some gas on my last visit in the parallel to No. 7 flat coming out of the roof with a hissing sound. The entire mine is worked with safety-lamps.

Lemont.

Examined the mine twice, and found it in an improved condition from my former visits, and in a very short time another opening will be made, which will give the mine more than sufficient ventilation, it having been formerly in such a fearful condition that it will require some time to get it in shape again.

Stewart Furnace Company.

Examined the mine once. While the ventilation was rather satisfactory, nevertheless it showed plainly that the proper attention was not given to ventilation. Gave orders that more posts be furnished the miners, to white wash the man-holes, and that the traveling road be made available.

Leith.

Visited the mine three times, and found enough of air so as to comply with the law; however, it is not sufficient for this mine to insure perfect

safety. During February, I stopped the management from hoisting persons or letting them down in the hoisting shaft, until the catchers on the cage were in proper and secure order, which they at once attended to, and put on the most approved safety catches that stood the test. During the spring a 20-foot Guibal fan has been erected.

Redstone.

Made two visits to this mine, and found it in very good condition; the mine seems to be safe and securely worked.

Oliphant.

On an examination, April 17, I found the mine rather in a poor condition, regarding ventilation. I told the management what to do to remedy the defect, which, I understand, has been done.

Fairchance.

Examined this mine once; found sufficient ventilation; otherwise, the mine is not in a satisfactory condition. The mine, in general, seems to be greatly neglected.

Bliss & Marshall.

Found the mine, on my only visit, in a satisfactory condition.

Umpire.

Visited the mine once, and found it not in a very good condition, concerning ventilation. There has been a good deal of trouble at this mine by the crushing in of an entry, by which the ventilation was in part destroyed.

C. L. Snowden.

Is a new mine, on the Monongahela river, near Brownsville, and is a small slope. The mine seems to have been opened with a good system of working.

Climax.

Examined this mine on the 16th of April, and found ventilation in satisfactory condition, and the traveling road nearly finished.

Casselman.

Found this mine in a very bad condition, unfit for men to work in. I gave the management the legal ten days' notification, with instruction, if then the law was still violated, I would prosecute the case.

Shaw.

On my only visit, I found one side of the mine fairly ventilated, although on the left side of mine entry very little air was passing; however, but a few persons were working on this side.

Fairview.

Found on my only visit this mine in good condition. It is well taken care of in every respect.

Hocking.

In my only examination found this mine well ventilated and in good order.

Tub Mill Run.

Visited the above mine once, and found forty-two persons employed inside, and in very bad condition for ventilation. In the Auspicke heading there is an opening to the outside, but it was filled up with mud and dirt, so much so that hardly any air could pass. I told the mining-boss to at once have the opening cleaned out, and not allow any person to work in said heading until provided with sufficient ventilation; besides, I gave the mining-boss strict instruction to furnish the mines with enough of posts.

Cochran Mine.

Examined the mine once, and found it, in general, poorly ventilated, and in a rather wet condition.

Flog Hill.

Gave the mine one visit. It employs twelve persons inside, and is also like many of the mines in Somerset county, worked with a defective system, hence poorly ventilated.

Keystone.

Found mine, on my only visit, in fair condition in respect to ventilation, furnishing more than the lawful amount of air. The mine only employed, at my visit, twelve persons inside, and is greatly troubled with water.

Everett Iron Company.

Found this mine, on my first visit, in very good condition, and is well taken care of.

Brown's.

Visited the mine once, and found it not well ventilated. It is worked with considerable difficulty. The management is doing all in their power to improve the ventilation, and make it a first-class mine, and I think in the near future they will succeed.

Pennsville.

Examined this mine February 5, and the ventilation came within the law. Only twelve persons are employed inside. A furnace, I am told, will be built in the spring, the mine having been idle for a long time.

DESCRIPTION OF FATAL ACCIDENTS.

ACCIDENT No. 1.—August Maska was instantly killed November 18, 1884, by a fall of roof at Uniondale mines, Fayette county. He was sixty-nine years of age. Mr. Maska had been engaged with his son in-law, but on the day of the fatal accident, the latter was not working. When I examined the place and the surroundings, and from the information received, I came to the conclusion that Maska met to his death in not being an experienced miner.

ACCIDENT No. 2.—John Roby lost his life November 20, 1884, at Redstone mine, Fayette county, while at work drawing pillar, the coal roof falling on him on the road. He was working double, and when I examined the place on the same day the accident happened, I received the information from his partner that it was known to them that the roof coal that killed Roby was loose, but they thought it would not fall. In my opinion it was not an accident, but negligence, that caused this fatality. Roby was thirty years of age, and left a widow and four children.

ACCIDENT No. 4.—James Perkins was killed December 4, 1884, at Turnbull's mines, Fayette county, while undermining, about two tons of coal falling on him. Perkins was fifty years of age, and left a wife and eight children. Perkins was an experienced miner, having worked in the mines since he was twelve years of age.

ACCIDENT No. 5.—Samuel McLaid was crushed by a pit car, while trying to stop it on a down grade, from which injury he died three days afterward. He was thirty years of age, and left a wife and two children. The accident occurred on December 5, 1884, at Leith shaft, Fayette county.

ACCIDENT No. 8.—William Snyder, a boy thirteen years of age, was killed on February 6, 1885, at the Lemont mines, in Fayette county, by a fall from the roof. When I examined the place, I saw at a glance, from the manner the room was worked by Mr. Snyder, the father of the unfortunate child, that he had no knowledge of mining, and no doubt his inexperience was the cause of his child's death.

ACCIDENT No. 9.—Occurred at the Everett Iron Company mines, in Bedford county, on March 2, 1885, to George Dickson, by his drilling a four-foot hole into a solid pillar of coal, it not having been undermined; and then charged it with powder, and, tamping it, set fire to the squib; then he went to the adjoining room, nearly opposite where the shot was placed, and when the shot went off, a small lump of coal hit him on the forehead, from which injury he died on March 7, leaving a widow and five children. When I investigated the accident, the general opinion prevailed among the miners that from sheer curiosity, on the part of Dickson, he lost his life.

ACCIDENT No. 13.—Was W. H. Kaufman, a driver, who was instantly killed at the Painter mine, Fayette county, March 24, 1885. He was

the night hauler, and the accident occurred to him while hauling one full car in a heading on a down grade for a short distance. In place of spragging the car, he got in front of it to check the speed, (the horse still being hitched,) when he fell, the car running over him with the above result. He was twenty-four years old, and leaves a wife and one child.

Accident No. 15.—William Fisher was instantly killed in the Keystone mine, Somerset county, April 7, by a fall of coal while undermining. I examined the place of accident the next day, and it showed that Fisher was a good, careful miner, having his room in the best of order. His death was, from a practical stand-point, the result of a mere accident. He was forty-two years old, and left a wife and five small children.

Accident No. 16.—John B. Janes lost his life in the Morrell mines, Fayette county, April 7. While at work in the slope, it having a double track, he forgot himself, it seems, in not getting out of the road; the cars caught him, and he died a few hours after the accident. He was forty-five years of age, and left a wife and four children.

Accident No. 17.—Junick Gossett, eighteen years old, was seriously hurt by a fall of coal while undermining, on April 10, at the Climax mine, Fayette county, from which injury he died April 14, 1885. In examining the case, I found it was a pure accident.

Accident No. 19.—Sylvester Hilton, sixteen years of age, was hurt by a fall of stone, in the heading, while helping to push out of his room a car of coal. From the injury received, he died the same evening the accident occurred, April 21, 1885, at the Umpire mine, Fayette county. I examined the place where the fatality occurred, on April 23, and, in my judgment, it was a mere accident.

From the fatal accident which occurred October 27, 1884, at the Youngstown mine, Fayette county, whereby fourteen persons lost their lives, I made an information against the mining-boss, as follows:

Fayette County, *ss:*

Before me, a justice of the peace, in and for said county, came August Stinner, mine inspector of the Fifth mining district of Pennsylvania, who, being duly sworn according to law, says: That one James Cole, mining-boss of the Youngstown Coke Company, Limited, employed at the coal mines of said company, at a place called Youngstown, in North Union township, said county, has failed and neglected to comply with and perform the duties of mining-boss, by the laws of the State of Pennsylvania; that in consequence of said Cole's neglect of duty during the last past two years, at said Youngstown mines, said county, an explosion took place in said mines of explosive gases or fire-damp contained in said mines, on the 27th day of October, 1884, in the afternoon of said day, causing the death of Joseph Zebley, Frank Nicklow, Sol. H. Vansickle, and eleven other miners then and there laboring in said mines; that said James Cole was then and there employed by said company as mining-boss at said mines, and had entered upon the discharge of the

duties of said position, and while in the occupancy of said position at the time of the explosion, and for and during the period of at least six months immediately before the time of said explosion, said Cole did neglect to circulate and cause to be circulated around the main heading and cross-headings sufficient air to dilute, carry off, and render harmless the noxious gases generated therein, which caused the standing gas existing in said mine or headings at the time of and prior to said explosion; that said Youngstown mine was then and there known by said Cole to generate fire-damp and standing gas, causing said explosion, and that he unlawfully neglected and omitted to take the measures necessary to purify said mines, and render the same in a safe condition for the employment of laborers therein; that said Cole did not employ a competent person to examine the said mine every morning with a safety-lamp before the workmen were allowed to enter said mine, but unlawfully did employ an incompetent person to do said work during the period of about forty-five days immediately prior to said explosion. Your informant, therefore, asks that a warrant may issue for the arrest of said James Cole, and that he be held to answer the above charge.

AUGUSTUS STINNER.

Sworn and subscribed to, this 24th day of November, 1884, before

JOHN HOLMES,
Justice of the Peace.

In the meantime, Mr. Cole, the mining-boss, took sick with typhoid fever, from which he died a few weeks after, and that ended the prosecution.

To the Honorable J. SIMPSON AFRICA, *Secretary of Internal Affairs of the Commonwealth of Penusylvania:*

SIR: In compliance with the tenth section of the act of the General Assembly, approved June 30, 1885, I have the honor herewith to submit my report as inspector of mines for the Fifth bituminous coal district from the time of my commission to the 31st of December, 1885.

Having been on duty in the district only a part of the year, the district in my case being new, with new duties added, owing to being appointed one of the examiners for this district to examine applicants for certificates for mine-bosses, &c., which necessarily required much time and labor, I have not been able to make my report as complete as I would wish. A part of the year has been reported by my predecessor, Mr. Augustus Stinner, who filled the office till my commission was granted.

Whenever a change is made in the bituminous mining law, it has always been found necessary that the extent of the territory in each district be confined within narrower limits, on account of too much labor having been imposed on the inspectors in the discharge of their duties. New districts are formed to remedy this, but every time this is done new duties are added also. The original object for the passage of the law at first was "providing the means for securing the health and safety of persons employed in the

bituminous coal mines." It would be well to keep this object in view whenever the law is to be amended. I agree with the inspector of the First district in the last annual report where he says that "the inspectors should be relieved from the duties of testing scales and branding cars," &c., and that "the question of establishing a school on a plan somewhat similar to our State normal schools for the training and education of the officers and persons in charge of our mines is also one of great importance, and should be placed before the attention of our law-makers," &c.

There have been eleven accidents, two fatal, and nine non-fatal, reported. Of the fatal accidents, one was caused by fall of roof, and the other by fall of roof-coal. Of the non-fatal, five were caused by mine cars, one by fall of roof-coal, and three by miscellaneous causes.

The mines of this district have not been running near their capacity, many of them not one half, and then not working full time.

Thirty-nine mines in Fayette county report an output of . 2,859,393 tons.
Nine mines in Somerset county, ... 207,076 tons.

Total output of forty-eight mines, ... 3,066,469 tons.

Number of persons employed inside and outside are reported in table No. 2. The number outside are those employed at the mines, in most cases, and not including yard hands at ovens.

Number of mines in the district, sixty-six.

In addition to the tables accompanying this report, there will be found a description of the mines visited; a sketch of the Leisenring fan, furnished me through the kindness of Mr. J. K. Taggart, superintendent and engineer of the Leisenring mines; also, photographs, furnished me through the kindness of the general manager and the engineer of the H. C. Frick Coke Company, showing the Trotter fan and Trotter village, the new trestle, &c., at their Rist mine, and coke ovens, &c., at one of their coke works.

All of which is respectfully submitted.

Yours, very respectfully,

J. J. Davis.

Connellsville, Pa., *February 1, 1886.*

FATAL ACCIDENTS REPORTED.

Accident, No. 1.—September 26, an accident, resulting in the death of Thomas Welsh, occurred at the Wheeler slope, at about five o'clock in the afternoon. Welsh was a married man, about thirty-eight years of age, and had a wife and four children. He was working in No. 6 rib, No. 2 right butt, and was, to all appearances at the time of his death, in the act of putting up a post. It was quitting time, and nearly all the miners had gone home, and it was thought that he was just setting this post in order to secure his roof before leaving, when it fell and caught him. John

Monaghan and Jerry Driscoll, working together in rib No. 4, heard the fall, but not knowing where it was, they drew their timbers and started out. William H. Janes, the driver, went into the rib to call Welsh, but received no answer, and seeing his lamp hanging on a post, Janes said that he thought Welsh was under the fall, and hurried out to call for help. Several persons from outside volunteered to go in to look for him. When they came to the place where he was working, they found him under the fall, with both his legs and neck broken, and body badly bruised. He was dead when found. I made an investigation the same evening, and found the above facts; also, an inquest was held, with the following verdict:

COMMONWEALTH OF PENNSYLVANIA, } ss:
County of Fayette, }

An inquisition indented and taken at Wheeler, in the county of Fayette, on the 26th day of September, in the year of our Lord 1885, before me, Henry Page, acting coroner, upon the view of the body of Thomas Welsh, then and there lying dead, upon the oaths of Crawford Stillwagon, foreman, and Thomas Loudon, William Knight, Michael Conlin, James McLaughlin, and John Kerr, good and lawful men of the county aforesaid, who, being sworn on the part of the Commonwealth, when, where, how, and after what manner the said Thomas Welsh, a coal miner, late of Wheeler, came to his death, while in the act of setting a post, by the falling of a body of slate, which caught and crushed him, that in our opinion it was purely accidental and unavoidable, and no blame can justly be attached to any person.

In witness whereof, as well the coroner as the jurors aforesaid have to this inquisition put their hands and seals on the day and year and at the place first above mentioned.

HENRY PAGE,
Coroner.

CRAWFORD STILLWAGON, *Foreman*,	[SEAL.]	JAMES W. KNIGHT,	[SEAL.]
THOMAS LOUDON,	[SEAL.]	JOHN KERR,	[SEAL.]
JAMES MCLAUGHLIN,	[SEAL.]	MICHAEL CONLIN,	[SEAL.]

ACCIDENT, No. 2.—Patrick Connelly, working at the Morrell slope, was killed by a fall of roof-coal on the 10th of December. Connelly was working in No. 4 left flat, and in No. 4 butt and No. 1 room. He had commenced to draw his rib, and had worked back about thirty-one feet, leaving some roof-coal up that he intended to get.

The morning of the accident, John Yocum, the fire-boss, was in Connelly's place twice. The last time he was in was about eleven o'clock; he was talking to him about timbering. Connelly said he did not want any timber, that he was going to draw what he had out, to leave the roof-coal down, and if it would not fall after he drew the timber, he would work in the next rib till the roof-coal fell.

He was drawing his posts that evening when he was caught. A large

quantity of coal fell, in the estimation of some of the miners that were in with me at the time of the investigation, there must have been about sixteen tons of coal. Connelly was a married man, and left a family consisting of a wife and five children.

DESCRIPTION OF THE MINES IN FIFTH DISTRICT.

Among the drift mines in this district, there are some to be found where in places the cover is very light, and but a short distance to the surface, the seam nearly horizontal. Often mines of this class depend on their natural condition for both their ventilation and drainage. They are, in most cases, free from explosive gases, and the dangers encountered in mining pursuits are not as numerously found in these mines as in others. The trouble in their ventilation is that the air-current is not steady. Being governed by natural causes, it is subject to sudden changes, which are caused by the difference in the temperature of the air. The plan of working adopted in most of these mines is the single-entry, room and pillar plan. There are other drift openings that the above conditions are not applicable to. They are opened under a heavy cover. The bottom is not horizontal, but often either to the rise or to the dip without much regularity. Artificial means for their ventilation are required nearly from the start, and often for their drainage. Slope openings or openings driven into the coal by crossing from the surface, the intervening strata on an incline angle until the seam is reached. A pair of drift openings, one for the hoisting slope, and the other for air-course and traveling-way, are made where the coal seam comes to the surface, and are driven to follow the inclination or dip of the coal toward the center of the basin, at whatever angle of descent the coal may be. After extending these openings a certain distance down on the pitch of the coal, openings are driven on each side of the slope if the territory permits. These side openings or headings are called, in the mining language of this region, the flats. They are driven nearly at right angles to the slope, and as nearly level as the proper drainage of the mine will permit. These openings, or flats, are generally from seven to nine feet wide; the width depending upon the nature and character of the roof, and the height governed in this region by the corresponding thickness of the workable coal, which, in most cases, is from six to eight feet. When the first set of flats is started, the distance of hauling to the outside may be called the first lift. Preparations are made on each flat, at proper distances from the slope, by widening the flats sufficiently for a double track, one for full and the other for empty cars. The cars are hauled from these stations to the top of the ovens by wire ropes and stationary engines, located outside of the mine for that purpose. These flats or mains are driven to the boundary lines of the property across the dip of the seam. The butt headings are driven off the flats to the rise of the coal, and nearly

the rooms nearly parallel to the flats. While the workings are progressing in the flats that are opened, the slope is sunk further into the basin, and other flats, butt-headings, and rooms opened on lower lifts until the line of property is reached in the direction of the dip.

There are some of the slope workings badly laid out, showing a lack of judgment from the start. Their present appearance indicates that the work had been done without any regard for the further safety of the mine and the security of the employed, nor the interest of the parties whose money was invested, the apparent objects being to get coal anywhere to supply the demand, without any consideration for the welfare of the mine or its future operations. The coal is worked without any system, not sufficient coal being left in the pillars to support the roof; squeeze and creep are brought on, great quantity of coal is lost, long distances of track, timber, and road materials are buried, air passages closed by impediments, ventilation checked so that it is dangerous to work; large effusions of gas issued from the broken parts without proper means for carrying it off to the open air, &c.

The shaft openings in this district are not as numerous as the slope and drift openings. They vary in depth from one hundred feet to about four hundred feet. It may be said that there are shafts in this district that are not second to any in the State, in their hoisting machinery and other equipments. The surface plants at the shafts owned and operated by H. C. Frick Coke Company, the Connellsville Coke and Iron Company, &c., are furnished with first class machinery for both hoisting and ventilating purposes. The fans are among the largest in use at any of the bituminous mines of the State, and they are producing good results. The pumping arrangements are also good, &c. In shafts, the underground workings are similar to those of drifts. The drifts are driven from the shaft bottom. The same rules are applicable to the proper laying out of the works. One of the most important subjects requiring the attention of the parties in charge of the mines, is the proper division of the mine in order to secure its safe working, and the largest out-put of coal with the least expenditure of money and labor.

The nature and character of the formations above the coal should be studied, and the changes necessary to conform with the different thicknesses, so that the deeper the mine, the more substantial and larger the pillars and supports.

MINES IN FAYETTE COUNTY.

Clarissa.

A drift opening operated by James Cochran, Sons & Co. Superintendent, P. G. Cochran; mining-boss, J. C. Moore.

Visited November 3. Number of miners employed, forty men and five boys; day persons, inside, eight, and four mules. The ventilation by nat- parallel to the line of the slope. The room workings are off the butts, and

MINERS HOUSES OF THE H. C. FRICK COAK COMPANY.
AT THEIR TROTTER COAK WORKS.

ural means; cubic feet of air in circulation, seven thousand seven hundred and seventy; measured at bottom of air-shaft, twenty feet deep from surface.

Nelly.

Drift opening located near the Clarissa mine, operated by Brown & Cochran. Both of these mines are new, and under the same management. When visited, Nov. 3, there were of miners employed in the mines, thirty-five men and three boys, and seven day persons including drivers. Cubic feet of air in circulation, eight thousand and eighty-five.

Fort Hill.

Drift opening operated by W. J. Rainey. Located on the P. McK. & Y. R. R. Superintendent, A. J. Hill; mining-boss, George Armstrong.

Visited November 4. Number of miners employed, twenty-eight men and seven boys. Number of persons employed by the day, inside, five This mine consists of double mains and single butts. Width of entries, eight and one half feet; rooms, fourteen, and ribs, ten; gauge of track, forty inches; T rails on all entries. Natural ventilation. Number of cubic feet of air in circulation when measured, nineteen thousand six hundred.

Jackson.

Mine located on the B. & O. R. R., east of Dawson. Operated by Cochran, Sons & Ewing. Superintendent, John Heuston; mining-boss, William Thompson. This mine is a drift opening, employing at time visited, November 5, sixteen miners and one boy, in addition to six other persons working by the day, employed inside. Natural ventilation. Number of cubic feet of air in circulation, four thousand and eighty.

Sterlings and Jimtown.

Located in Lower Tyrone township, on the Hickman Run branch of the B. & O. R. R. Owned and operated by J. M. Schoonmaker. Superintendent, Milton Rosser; mining-boss, Frank A. Cochran. Cubic feet of air in circulation, when visited, on the 15th of October, twenty-four thousand three hundred and sixty. The workings in the two sections, Nos. 1 and 2, in No. 1, on Nos. 15, 16, 17, and 18 butts. In No. 2, in Nos. 1, 2, and 3 butts. The number of miners employed, ninety-five men and seven boys. Other persons employed inside and outside of mine, twenty-five. Average number of persons employed during the year, inside, one hundred and twenty-four, and outside, one hundred and two, including ovens.

The entries in this mine are driven eight and one half feet wide. Rooms fourteen feet, and ribs, twelve feet. The roads and working-places were in good condition.

Cora

Is a small mine located near the Sterling mines; operated by Newmeyer & Sons. Average number of persons employed during the year, inside, ten; outside, twelve.

Tyrone.

A drift opening, operated by Laughlin & Co., (Limited.) Superintendent, C. Wharton; mining-boss, Albert Herrington. The working parts of this mine at the time visited, October 31, were in Nos. 17, 18, 19, and 20, butt headings. Number of miners employed, forty men and two boys. The ventilation registered at bottom of air shaft, twenty-two thousand five hundred and seventy-five cubic feet of air per minute. The mine all through in fair condition as to ventilation, drainage, &c.

Frick Drift Openings,

Operated by H. C. Frick Coke Company. It consists of two parts, called the upper and lower, and has two openings to each. Superintendent, Robert Ramsay; mining-boss, John Keck. There were employed at the time visited, November 6, in the upper, eleven miners and two boys, and in the lower, twenty miners and one boy. Air measurements taken showing cubic feet of air in circulation, six thousand one hundred and twenty-five.

Rist

Is a new slope opening, operated by H. C. Frick Coke Company. The working will connect those of the Henry Clay slope. The product of the mine will be conveyed over the Baltimore and Ohio railroad (Mount Pleasant branch) to their ovens by means of a good, strong, substantial bridge, planned and constructed under the supervision of Mr. Morris Ramsay, mining engineer of the company. A drawing of this structure, showing the coal bins, tipple-house, the engine-house, and other buildings in connection with this mine, accompanies this report.

The inside improvements of the mine were not completed at the time visited by me, on the 6th of November, but the work was progressing. A ventilating shaft, seven and one half feet in diameter, had been sunk from the surface to coal, sixty-two and one half feet deep, and a stack, fifty-four feet high, had been erected on top. There were, also, preparations making at the bottom to build a good-sized furnace, which has been built since. Number of persons employed inside at the time, forty-one miners and three boys; other persons employed inside, eleven.

Summit Mines.

Drift openings, located on the Mount Pleasant branch of the Baltimore and Ohio railroad. Operated by H. C. Frick Coke Company. Superintendent, Robert Ramsay; mining-boss, J. W. Moody. The Summit Mines consist of two pit openings called Nos. 1 and 2. The workings in No. 1 were in two entries, Nos. 3 and 4, drawing ribs and room work in both. Also the nature of the work was the same in No. 2.

The Eagle mine is also through to these mines, and under the management of the same persons. I visited the Summit on the 8th of December, and found the mines in good condition. The ventilation is produced by a furnace giving, at the time measured, forty-two thousand nine hundred and thirty cubic feet of air per minute. The system of air-crossing adopted in this mine is very beneficial, and should be adopted in many of the other mines in this region. It lessens the distance for the air to travel, and in many cases, in connection with air-splits, it would increase the volume, and furnish the miner with more pure air.

Clinton

Is operated by B. F. Keister & Co. Located on the Mount Pleasant branch of the Baltimore and Ohio railroad. Superintendent, A. L. Keister; mining-boss, Samuel Barnum. Employing, when visited on the 9th of December, nine miners and three day persons, inside, including drivers. The coal is hauled out of the mine by stationary engine with wire rope. The mine consists of two main and two parallel butt headings. Only working rooms in the left parallel, but making preparations to work rooms in the other. The ventilation is produced by furnace. Air measurements taken showed eleven thousand seven hundred and sixty cubic feet of air in circulation.

Franklin.

A drift opening, operated by B. F. Keister. Employing, on the 9th of December, when visited, thirteen miners, two mules, and three day persons, inside. The mine consists of upper and lower entry, seven miners employed in upper, and six in lower. Natural ventilation. There are four openings to daylight, two of which are air-shafts. The mine all through was in good condition. Air measurements taken showed the number of cubic feet of air in circulation per minute to be twelve thousand one hundred and sixty.

Valley.

This mine is a drift opening, operated by H. C. Frick Coke Company. Superintendent, Robert Ramsay; mining-boss, James Jackson. When visited on the 10th of December, number of miners employed, fifty-seven men and five boys. Number of mules inside, nine. There were sixteen day persons employed inside, and twelve outside.

The mine is in three sections. There are three entries or headings in the first section. They are old workings, and will soon be worked out. There are rooms only in one, (North Dumpling,) the other two are working in ribs and stumps. Section second, called the south-west section, consists of two parallel face and six butts, Nos. 1 and 2, on the left, and Nos. 0, 1, 2, and 3 on the right. The workings in this section are all new, and just opening up. On section third, and off of "A" "C" face-headings, there are five butt headings, Nos. 1, 2, 3, 4, and 5; Nos. 1, 3, and 4 are on

the right, and Nos. 2 and 5 on the left of "A" "C." In this section there are both room and rib workings, &c. The coal is hauled out of this mine by means of a stationary engine and steel wire rope; the distance of rope, hauling from the furthest station, is three thousand seven hundred feet. The ventilation is produced by furnace. Air measurements made near furnace showed a volume of air passing of thirty-four thousand two hundred cubic feet per minute.

The workings of this mine are well conducted, and on a good system and plan of working.

All the mines of the H. C. Frick Coke Company are under the same management. Thomas Lynch is general manager of all their works, and Robert Ramsay superintendent of both the inside and outside construction. There are in this district eleven mines, operated by the above firm, the Frick, Rist, Henry Clay, Morgan, Foundry, White, Summit, Eagle, Tip Top, Valley, and the Trotter. Henry Clay is located on the Baltimore and Ohio railroad near Broadford. The other mines, with the exception of the Trotter, are located on the Mount Pleasant branch of the Baltimore and Ohio, between Broadford and Everson, and are all drift openings except the two slopes, Henry Clay and Rist, and the Trotter shaft. This shaft is located south-west of Connellsville, and is three hundred and twelve feet deep from surface. The outside machinery is first class in its character and construction. The ventilating fan is twenty-five feet in diameter and eight feet wide, and is of the Guibal type, used for a blower, as can be seen by the accompanying drawing. I have also accompanying this report a drawing of the Trotter village, which has been built by these works since their opening. The inside workings of this shaft are extensive, employing from one hundred and fifty to two hundred miners. I visited the mines twice, and found them in good condition both times.

Painter and Diamond Mines.

These mines are owned and operated by McClure & Co. Superintendent, S. C. White. They are drift openings, the workings part double and part single entry. The Painter mine has three pit mouths. The entries are driven about seven and one half feet wide, and about seven feet high. Rooms twelve feet wide, with ribs eight feet wide.

The ventilation is by furnace, which, at the time visited in October, required some changes by bratticing and confining the air current to its proper course, &c. The superintendent has had several of these changes made since, and the mine greatly improved. Average number of persons employed during last year at the Painter mine, inside, thirty; outside, forty. At the time these mines were visited, the Diamond mine only employed eight miners.

Dexter

Is a small mine, a drift opening, located between the Furnace mine and the Painter. Employs only a few persons.

H. C. FRICK CO
AT THE RIST MINE, NEA

NEW TRESTLE,
D, FAYETTE COUNTY.

Pennsville.

This is a slope opening, operated by A. H. Sherrick, located near Pennsville station on the South-West Pennsylvania railroad. Superintendent, A. H. Sherrick; mining-boss, J. V. S. Minerd. When visited on the 18th of December, the working parts were all in good condition. Air measurements showed ten thousand two hundred and ninety cubic feet passing per minute.

Home.

A drift opening, operated by J. W. Wiley. This is a small mine. On the 10th of December, only employed six miners and one hauler. Number of ovens, twenty.

Furnace.

Drift mine, located near Scottdale, employing twenty-five persons inside. Only operated about eighty days in the year. Working in Nos. 1 and 2 butt headings, and on main and line heading.

Coal Brook.

Drift opening, located on the S. W. P. R. R., operated by J. R. Torrance & Co. Superintendent, M. F. Pickard; mining-boss, Simon Huey. Made one visit to this mine on the 27th of October. Number of miners employed, twenty men and one boy. Natural ventilation and drainage by natural means.

All the workings are rooms and entries, not drawing any ribs. Gave directions to take the air current to face of heading. Air measurements gave six thousand two hundred and forty cubic feet.

Grace.

Mine is a slope opening, located near Moyer station, on the S. W. P. R. R. Operated by W. J. Rainey. Superintendent, George Sharper; mining-boss, John Thompson.

Visited this mine on the 13th of October. Number of miners employed at that time, twenty-five men and five boys. Number of other persons employed, inside, seven. Compressed air is used for pumping, and the temperature of the mine is thereby kept down, &c. The ventilation is produced by furnace. Number of cubic feet of air in circulation, twelve thousand.

Connellsville Shaft.

Visited on the 22d and 25th of September. This shaft is located on the B. & O. R. R., near Connellsville. It is operated by the Pittsburgh & Connellsville Gas Coal Company. Superintendent, Charles Davidson; mining-boss, Crawford Stillwagon.

The depth of this shaft is one hundred feet from surface to landing at bottom. Size, $20' \times 9'$, and lined to bottom; there are safety catches on the cages.

The machinery is examined every morning by the master mechanic, John O'Donald, and the working-places by the fire-boss, Michael Daley. The

ventilation produced by six-foot Champion fan. At the time visited, the fan shaft was the down-cast, and the hoisting shaft the up cast. Air measurement taken in cut-through in Broadford entry (double) registered a velocity of one hundred and sixty feet per minute. Section area, fifty-six feet. In south-side split, on Flitch entry, velocity two hundred and thirty feet per minute, and area seventy feet. River entry near face, velocity one hundred and ten, section area, forty-nine feet. Air measurement, near bottom of down-cast, velocity five hundred and sixty feet per minute; sectional area, forty-four feet. Cubic feet passing, twenty-four thousand six hundred and forty.

Plumer

Is a drift opening operated by the above company. Superintendent, Charles R. Davidson; mining-boss, Theo. Lowden. This mine employed, at the time visited, forty-four miners, and six boys. Working in six entries. Ventilation by furnace.

Wheeler Slope.

Mine located in Fayette county, and operated by the Cambria Iron Company. Superintendent, James F. Beattie; mining-boss, Neil Beattie.

The mine consists of a slope opening two thousand six hundred feet in length—single track. There is also another opening, which is used exclusively for traveling in and out, and, in addition, the mine is connected in parts of the workings with the Morrell mine. Owing to the pillars left on parts of the slope being thin, and a squeeze coming in the direction of the slope, the exertions of those in charge were greatly taxed to prevent the slope from crushing in. I was told that the parties at present in charge were not the ones under whom that part of the mine was worked.

The ventilation of this mine is assisted by a Murphy fan six feet in diameter. Inlet current of air measurement on fan slope showed a velocity of two hundred and eighty feet per minute, where the sectional area averaged $9' \times 8' = 72$.

Morrell.

The Morrell is a slope opening, operated by the Cambria Iron Company. Superintendent, James F. Beattie; mining-boss, Andrew Beattie.

Visited September 11 and December 10. The workings are on the double-entry plan. The entries or headings are about nine feet wide, and from seven to eight feet high. The rooms are driven twelve feet wide, and the ribs are thirteen feet.

There is a shaft forty feet deep sunk for traveling-way, fitted with stairs three feet wide, and at angle of from thirty to forty degrees.

The ventilation is produced by Murphy fan eight feet in diameter, assisted by exhaust steam, and the air-current is conducted through the mine by using brick stopping to keep it in its proper channel. Air measurement

COAK WORKS OF THE H. C. FRICK COAK CO.

taken in the inlet current, south split, velocity five hundred and fifty feet per minute, where the sectional area was sixty-five feet, and another measurement taken in the inlet north split, showing a velocity of five hundred and sixty feet, and sectional area, sixty-five. This mine employes over one hundred and fifty miners. Total number of persons employed inside and outside, three hundred and sixty.

Atlas.

A slope opening, located near Dunbar. This mine has not been operated during the year on account of fire.

Leisenring, Nos. 1 and 2 Shafts.

Shaft openings operated by the Connellsville Coke and Iron Company. Located in Dunbar township. Superintendent, J. K. Taggart; mining-boss at No. 1, Robert Gray; and at No. 2, Thomas Jenkins.

These mines are extensive mines, employing a great number of persons. The machinery in use for hoisting, pumping, and ventilating, is among the best made for that purpose.

Shaft No. 1 is three hundred and seventy-one feet deep, and No. 2, three hundred and ninety-eight. The inside workings of both shafts are well laid out; the works are on the double-entry system.

Ventilation by fans; each mine furnished with a fan twenty feet in diameter, of the Guibal pattern.

At the time visited, in September, there were employed in No. 1 shaft, one hundred and thirty miners, and forty other persons; and in No. 2, there were eighty miners, and twenty-six other persons.

Air measurements taken in shaft No. 1, when the fan was running at about forty-two revolutions per minute, showed seventy-two thousand cubic feet of air in circulation; and an air measurement taken in No. 2 shaft, when the fan was used at a very low speed, gave sixty-seven thousand two hundred feet of air in circulation.

These fans, although originally intended to be used only for exhaust fans, the company have had arranged so that they can be used for either forcing or exhausting purposes.

Through the kindness of Mr. J. K. Taggart, the superintendent and engineer of the works, I have been furnished with a sketch of the fan, which I send accompanying this report, and also a letter given by him, describing the fan in action:

Leisenring, Pa., *January 28, 1886.*

Mr. J. J. Davis,

Inspector of Mines:

Dear Sir: Inclosed sketch shows Guibal fan twenty feet in diameter, blades six feet six inches long, built by Vulcan Iron Works, Wilkes-Barre, Pa., originally constructed and located as an exhaust fan, but afterward re-

modeled to be used either to force or exhaust air. This fan is located at Leisenring, Pa., and set over air-shaft two thousand two hundred feet from main shaft, pumps being at main shaft. Fan was originally made to exhaust air, as by so doing the head-house and timbering of main shaft were kept comparatively free from escaping steam from pumps and steam lines, and general timber work in better state of preservation. However, when winter came, it was difficult to handle mine cars at bottom of main shaft. Ice had to be cut from guides and dumps, and the "cage men" were unable to stand the piercing cold. These drawbacks led to the idea of so modeling the fan that it could be made either to exhaust or force air, as shown in the sketch. Fan is now operated about eight months in the year exhausting air, and four months forcing air. Double doors are hung in the mine on same posts, so that change can quickly be made from force to exhaust or *vice versa*, the air-current being too strong to change direction of current without reversing the position of the doors. We find from actual experiment that the results are practically the same in cubic feet of air handled, whether fan is forcing or exhausting air. The natural tendency when pumps are working, is for main shaft to be up-cast. Under these conditions, fan running fifty revolutions forcing air produces about ten per cent. more air, than when running the same number of revolutions under same conditions exhausting air. This fan running ninety revolutions per minute produced one hundred and fifty-one thousand cubic feet of air through a heading of sixty-two feet sectional area. Contrary to general opinion and the idea of builders, the Guibal is equally well adapted as a force or exhaust fan, and requires very slight changes to be adapted for either requirement.

Yours truly,

J. K. TAGGART,
Superintendent and Engineer.

Anchor.

Mine located in Fayette county, near Dunbar, a slope opening. Length of slope, one thousand nine hundred and fifty feet. Single track with T rail, sixteen pounds to the yard have been in use, but at present they are taking up the light rail for use in the mine, and replacing it on the slope with twenty-four pounds steel rail,

The mine is operated by the Pennsylvania Mining, Manufacturing and Supply Company. Superintendent, Charles A. Laing ; mining-boss, William Hanasy.

There are three openings to this mine, but at the time visited in October there were only two in use. The one on the left of the main slope had been closed to stop communication with an adjoining mine on that side. The ventilation of this mine is assisted by exhausted steam. The working parts were in Nos. 6 and 7, right flats. Those of No. 6 flat, were in Nos. 1, 2, and 3 butts, and those of No. 7 in No. 1 butt. An air measurement

TROTTER FAN.
H. C. Frick Coke Co., Mine.

taken in man-way between Nos. 6 and 7 flats, showed a velocity of two hundred and twenty-five feet per minute, sectional area of sixty-four feet.

Uniondale.

A slope opening operated by the Reid Brothers. Superintendent, J. M. Reid; mining-boss, Thomas Owens.

Visited December 23. Number of miners employed, twenty-one men; number of other persons employed inside and outside, nine. The workings were in two flats, one on the right, and the other on the left of slope. Air measurements taken showed eight thousand eight hundred and fifty cubic feet of air in circulation.

Hill Farm.

Mine a slope opening, located at Dunbar, operated by the Dunbar Furnace Company. Superintendent, Robert Lang; mining-boss, Hugh Doran. The slope is three thousand three hundred feet long. Single track, T rail, twenty-four pounds to the yard, on part of the road, and sixteen pounds on the other. Made three visits to the mine. When visited on the 28th of October, there were employed forty men and five boys at mining; other day persons employed inside, eleven. Number of mules inside, four. Workings on both sides of slope. On the left, in "B" flat, and in Nos. 2 and 3 butts. Also working on the right, in No. 1 flat, and in one butt all in rooms. The ventilation is produced by exhaust steam; cubic feet of air in circulation, twenty-nine thousand four hundred.

Mahoning.

This is a slope opening near Dunbar, operated by the Mahoning Coke Works Company. Superintendent, Isaac Taylor; mining-boss, Beth Worman. There were three openings to this mine, all being slope openings, one of which was used for traveling-way. Number of cubic feet of air passing, when visited by me in October, was seventeen thousand eight hundred and fifty.

Ferguson.

Mine owned by the Dunbar Furnace Company. Has been idle for some time.

Mount Braddock.

Not working.

Percy.

This mine, a slope opening, is operated by the Percy Mining Company. Superintendent, L. DeSaulles; mining-boss, Everhart Shipley.

Mine visited October 1. Length of slope, one thousand two hundred

and fifty feet. Single track gauge, 3′ 4″, laid with T rail, sixteen pounds to the yard. The workings are double-entries, flat entries nine feet wide, butts eight feet, rooms eleven, and ribs from eight to nine feet. There are several openings from this mine to daylight. Number of cubic feet of air in circulation, ten thousand eight hundred. Air measurements taken at the inlet and outlet, and on lower right and left flats.

Youngstown.

This mine is a slope opening, operated by the Youngstown Coke Company. Superintendent, F. R. Bradford; mining boss, George Eustis.

The length of the slope is about two thousand seven hundred feet. Single track, with T rail, forty pounds to the yard, all except about two hundred yards, which, at the time of my visit, in November, had sixteen pound rail on. The hauling is done by stationary engine and wire rope, eight cars on each trip. There were, at the time mentioned above, eighty miners and three boys employed at mining, and twenty-five others, including drivers engaged inside. The mine is examined every morning by the fire-bosses, Daniel Farrimond and William B. Jones, who report its condition before any one is allowed to enter. The examination of the machinery is under the charge of Thomas Patterson. The ventilation is assisted by exhaust steam. There are two inlets, one on each side of slope. The slope is used for the up-cast. The headings are driven seven feet wide, rooms eleven feet, and ribs thirteen. The following air measurements were taken at the time of my visit: Inlet current, on line air-course, on left side, velocity, two hundred and thirty-five feet per minute; sectional area, sixty-four feet; inlet on right, velocity per minute, two hundred and fifty feet; sectional area, forty-two feet. On man-way, on left side, the velocity was one hundred and thirty feet per minute; sectional area, eighty-one feet. At outlet, near mouth of slope, I found the velocity six hundred feet per minute, and sectional area seventy-seven feet, which showed forty-six thousand two hundred cubic feet passing per minute.

Lemont.

This is a slope opening, located near Lemont Furnace, in Fayette county. Operated by R. Hogsett. Length of slope, one thousand four hundred feet. Gauge of track three feet and four inches, T rail, twenty pounds to the yard.

Superintendent, John Jenkins; mining-boss, David Hay. There were forty miners working in the mine when visited, on the 3d of October. There are three slope openings, one of which used for traveling-way. The ventilation is produced by steam. The main slope is the up-cast or outlet. There are two inlets, one on each side of the main slope. This mine had been generating fire-damp, but for two months prior to my visit in October, the fire-boss had failed to find gas in any parts of the mine, either in the old workings or in the new.

His statement was confirmed the day of my visit. Several parts were examined and found clear, but the safety of the mine requires that it should be thoroughly examined every day, and the ventilation carried up to the face.

Stewart Iron Company.

Mine a slope opening, single track, 20-pound T rail, 36-inch gauge. Length of slope, one thousand six hundred and fifty feet. Operated by the Stewart Iron Company, Limited. Superintendent, F. C. Van Dusen; mining-boss, Charles Roberts.

On the 17th of November, when visited, there were sixteen thousand and sixty-five cubic feet of air in circulation. Number of miners employed, fifty; other persons inside, eleven. The entries are driven eight feet wide, rooms and ribs twelve feet. Condition of mine good.

Union.

Drift openings located on the Redstone branch of the P. V. & C. R. R., near Smock station, employing from ten to fifteen miners, the workings consisting of two parallel mains and three butts. Mining-boss, George Whyel.

Leith

Is a shaft opening two hundred and eighty-four feet deep. Operated by the Chicago & Connellsville Coke Company, Limited. Superintendent, Charles McSweeny; mining-boss, W. F. Holsing.

At the time visited, on the 8th of October, the inside workings were divided into four sections or flats north, and two sections or flats south. There was a strong current of air passing through. The ventilation produced by a 20-foot fan. Air measurements taken, showing forty-five thousand four hundred and forty cubic feet of air. The mine in good condition, employing one hundred and twenty miners. Total number employed inside and outside at shaft, one hundred and seventy.

Redstone

Is operated by the Redstone Coke Company, Limited. Located about two miles south of Uniontown. The mine consists of two slopes called the upper and lower pits. Working, when visited on the 17th of December, in Nos. 8 and 10 flats in upper pit, and in Nos. 11, 12, 13, 14, 15, 16, and 17, in lower pit. A new shaft is sunk at this mine, and the condition greatly improved. Number of miners, one hundred and thirty men and ten boys. Total number of persons employed inside and outside, one hundred and eighty-four. Mining-boss, A. C. Whyel.

Fayette.

A slope opening, operated by the Fayette Coke and Furnace Company. Superintendent, A. B. DeSaulles; mining-boss, J. E. Springer.

The mine consists of two slope openings, out of which coal is taken; it has also another slope opening used for traveling-way. The workings were, at the time visited, in December, in three flats. The workings are dry, and the roads in good condition. Number of miners employed, forty-five men and one boy. Cubic feet of air in circulation, nine thousand three hundred and fifteen.

Fairchance.

Drift opening, operated by the Fairchance Furnace Company. Superintendent, R. L. Martin; mining-boss, John Humphreys. At the time visited, December 15, there were eighteen miners employed. The ventilation of the mine required some improvements in order to bring air to the head of workings.

Kyle Farm.

Operated by Bliss & Marshall. Drift opening, employing twenty miners. The mine, at the time visited, in December, was in good condition, the working parts well taken care of. Superintendent, J. W. Sterling.

MINES IN SOMERSET COUNTY.

C. & E. L. Coal Company.

Mine located near Meyersdale. Operated by the Cumberland and Elk Lick Coal Company. Superintendent, A. Chamberlin; mining-boss, James Phillips. Is a drift opening, and employing, at the time visited, in October, thirty-seven miners and two boys. It was not working near its capacity. There is a furnace in the mine to assist the ventilation. The drainage is by natural means. Gauge of track, 3′ 6″, and is partly T rail and partly wooden rail with scrap-iron. The working parts in fair condition.

Fairview Coal Company.

These mines are three in number, and all drift openings. When visited, on the 21st and 23d of October, Flog Hill mine employed twenty-five miners and two boys; Fairview, thirty miners and four boys, and Tub Mill Run, forty miners and two boys. Average number of persons employed in these mines during the year equaled one hundred persons inside and twenty outside. Total number of tons mined, seventy-five thousand. Thomas Rees is superintendent of these mines, and Thomas Connihan mining-boss at Flog Hill and Fairview, and John Rees at Tub Mill Run.

Hocking.

A drift mine, operated by the Hocking Coal Company. Superintendent, H. T. Hocking; mine boss, R. A. Winters; employing, at an average, twenty-five miners and two boys during the year. Ventilation requiring some improvement, when visited, in October, in order to take the current to face of workings.

Cochran.

Operated by James Cochran, is a small mine located near Salisbury, Somerset county, employing about eighteen miners when visited.

Salisbury.

At the time of my visit only employed six miners.

Keystone.

Owned and operated by the Keystone Coal Company. Only working a few miners during the year. Average number reported during year, eleven persons inside and five outside.

Hoblitzell.

Slope opening, operated by the Baltimore and Cumberland Coal Company, Limited. Located at Keystone Junction, on the B. & O. R. R.

At the time visited, in November, there were employed, as miners, twenty men and two boys. The main-heading was driven eighteen feet wide across the dip of the seam. Rooms twenty-feet wide, and ribs the same. Working in Nos. 7, 8, and 9 headings. Ventilation by exhaust steam.

Casselman.

Located at Garrett, on the B. & O. R. R. Operated by Casselman Coal Company.

Slope opening, employing, when visited, on the 21st of December, twenty-two miners and one boy, with six other persons inside and outside. There are three openings including air shaft.

Mines on the Berlin branch of B. & O. R. R. Not employing the number of persons required by the law to come under its provisions.

GENERAL RULES OF THE CONNELLSVILLE COKE AND IRON COMPANY.

First. Not more than ten persons are allowed to ride up or down this shaft at one time, and no person is allowed to ride on any cage with an empty or loaded wagon.

Second. All the employés are strictly forbidden to cross the cage-ways at the bottom of the shaft at any time.

Third. No employé, excepting those duly authorized by the superintendent or mine foreman, shall signal the engineer to hoist or lower the cages.

Fourth. No person is allowed to ride up or down the shaft on any cage not covered.

Fifth. A second outlet is provided with stairway and ready and open for use of all employés.

Sixth. All miners or other employés are required to report immediately to the mine foreman all falls of roof in their rooms, or the presence of any noxious gases or insufficient quantity of air, and they shall at once cease work, and not reënter their rooms without first having permission of the mine-boss that they can do so.

Seventh. No employé is allowed to go into any room or heading across which a sign-board is placed with the word "DANGER!" painted thereon, and any persons removing one of these boards without orders from the mining or fire-boss will be immediately dismissed and prosecuted.

Eighth. No person is allowed to enter this mine until the fire-boss has made a daily examination of the workings, and notified the hoisting engineer that it is safe to lower men down.

Ninth. Miners or others must not enter any room or heading that the fire-boss notifies them is not safe.

Tenth. Miners are not allowed to brush out gas from any of their rooms under any circumstances.

Eleventh. All employés are positively forbidden to enter any portion of the mine worked out or abandoned for any purpose whatsoever, without first being instructed by the foreman that they may do so.

Twelfth. Strangers or persons not in the employ of the company are not permitted to enter this mine without consent of the superintendent or mine foreman. Persons seeking employment must secure it outside.

Thirteenth. Any employé violating any of these rules will subject himself to immediate dismissal, and in case of accident occasioned by such violation to prosecution.

Fourteenth. The mine foreman shall have full charge of all work and persons employed under ground, and any direction given by him must be carried out. He shall also have charge of the shaft and coal until dumped in the bins.

Fifteenth. The fire-boss shall enter the mines every morning before any person is lowered, and shall examine all the workings, and, after so doing, notify the hoisting engineer whether it is safe or not to lower men. He shall have charge of all safety-lamps used.

Sixteenth. The engineer, on receiving proper signals, will lower and hoist men slowly and carefully He shall not lower any one in the morning until notified by the fire-boss that it is safe to do so. He must examine the wire ropes, cages, and connections between ropes and cages daily, and report immediately to the superintendent if they are not, in his judgment, safe. He is required to keep the machinery in his care clean and neat, and in perfect order.

Seventeenth. The cage and signal men shall have charge of the bottom and top of shaft under mine foreman, and shall not allow any person to signal to the engineer unless ordered to do so. They are not permitted to signal the engineer to hoist or lower the cage when more than ten men are on it.

Eighteenth. The above rules, in connection with the mining and ventilation law, will be strictly enforced.

. . . . . *Superintendent and Engineer.*

Approved, ... *Mine Inspector.*

TABLE I.—*Showing location of collieries in the Fifth Bituminous Mine District.*

NAME OF COLLIERY.	Name of Operator.	Location—County.	Name of Superintendent.	Post-Office Address.
Anchor,	Laing & Davidson,	Fayette,	Charles A. Laing,	Dunbar, Fayette county.
*Berlin.				
*Buffalo Creek.				
Clinton,	B. F. Keister & Co.,	Fayette,	A. L. Keister,	Owensdale, Fayette county.
Coal Brook,	J. R. Torrance & Co.,	do.	M. F. Pickard,	Moyer P. O., Fayette county.
Cora,	J. M. Newmeyer & Son,	do.	J. M. Newmeyer,	Dawson, Fayette county.
Clarissa,	James Cochran & Son,	do.	P. G. Cochran,	do. do.
Connellsville Shaft,	Pittsburgh and Connellsville G. C. & C. Co.,	do.	Charles Davidson,	Connellsville, Fayette county.
Casselman,	Casselman Coal Company,	Somerset,	R. F. Hoffman,	Meyersdale, Somerset county.
Cochran,	James Cochran,	do.	James Cochran,	Elk Lick P. O., Somerset county.
Diamond,	McClure & Co.,	Fayette,	Joseph Henry,	Scottdale, Westmoreland county.
Dexter,	J. R. Staufer & Co.,	do.		do. do.
Eagle,	H. C. Frick Coke Company,	do.	Robert Ramsay,	Mt. Pleasant, Westmoreland county.
Furnace,	Charlotte Furnace Company,	do.	E. A. Humphries,	Scottdale, Westmoreland county.
Foundry,	H. C. Frick Coke Company,	do.	Robert Ramsay,	Mt. Pleasant, Westmoreland county.
Frick,	do. do.	do.	do.	do. do.
Franklin,	B. F. Keister & Co.,	do.	B. F. Keister,	Owensdale P. O., Fayette county.
Fort Hill,	W. I. Rainey,	do.	A. J. Hill,	Dawson P. O., Fayette county.
*Ferguson,	Dunbar Furnace Company,	do.	Robert Laug,	Dunbar, Fayette county.
Fairchance,	Fairchance Iron Company,	do.	R. L. Martin,	Fairchance, Fayette county.
Flog Hill,	Fairview Coal Company,	Somerset,	Thomas Rees,	Meyersdale, Somerset county.
Fairview,	do. do.	do.	do.	do. do.
Fayette,	Fayette Coke and Furnace Company,	Fayette,	A. B. de Saulles,	Oliphant Furnace, Fayette county.
Grace,	W. I. Rainey,	do.	George Sharpe,	Moyer P. O., Fayette county.
Henry Clay,	H. C. Frick Coke Company,	do.	Robert Ramsay,	Mt. Pleasant, Westmoreland county.
Hill Farm,	Dunbar Furnace Company,	do.	Robert Lang,	Dunbar, Fayette county.
Hoblitzell,	B. & C. Coal Company,	Somerset,	J. J. Hoblitzell,	Keystone Junction, Somerset county.
Hocking,	Hocking Coal Company,	do.	Henry Hocking.	
Hagan & Whyel,	Union Coal Company,	Fayette,	George Whyel,	Smock P. O., Fayette county.
Jackson,	Cochran Sons & Ewing,	do.	John Heuston,	Dawson, Fayette county.
Kifer.				
Keystone,	Keystone Coal Company,	Somerset,	Thomas Yarington,	Meyersdale, Somerset county.
Kyle Farm,	Bliss & Marshall,	Fayette,	J. W. Sterling,	Fairchance P. O., Fayette county.
Leisenring, No. 1,	Connellsville Coal and Iron Company,	do.	J. K. Taggart,	Leisenring P. O., Fayette county.
Leisenring, No. 2,	do. do.	do.	do.	do. do.
Lemont,	Robert Hogsett,	do.	John Jenkins,	Lemont P. O., Fayette county.
Leith,	Chicago and Connellsville Coke Co., Lim.,	do.	Charles McSweeney,	Uniontown, Fayette county.
Mahoning,		do.	Isaac Taylor,	Dunbar P. O., Fayette county.
Morgan,	H. C. Frick,	do.	Robert Ramsay,	Mt. Pleasant, Westmoreland county.
Morrell,	Cambria Iron Company,	do.	James F. Beattie,	Connellsville, Fayette county.
*Mount Braddock.				
Nelly,	Brown & Cochran,	Fayette,	P. G. Cochran,	Dawson, Fayette county.
Painter,	McClure & Co.,	do.	Joseph Henry,	Scottdale, Westmoreland county.
Plumer,	Pittsburgh and Connellsville Gas Coal Co.,	do.	Charles Davidson,	Connellsville, Fayette county.

Pennsville,	A. H. Sherrick,	do.	A. H. Sherrick,	Pennsville, Fayette county.
Percy,	Percy Mining Company,	do.	L. de Saulles,	Uniontown, Fayette county.
Redstone,	Redstone Coke Company, Limited,	do.	J. S. Schoonmaker,	do. do.
Rist,	H. C. Frick Coke Company,	do.	Robert Ramsay,	Mt. Pleasant, Westmoreland county.
Summit,	do. do.	do.	do.	do. do.
Sterling, No. 1,	J. M. Schoonmaker,	do.	Milton Rosser,	Dawson, Fayette county.
Sterling, No. 2,	do.	do.	do.	do. do.
Sterling, No. 3,	do.	do.	do.	do. do.
*Spring Grove,	James Cochran & Co.,	do.		
Stewart Iron Company Mine,	Stewart Iron Company, Limited,	do.	F. C. Van Dusen,	Uniontown, Fayette county.
Shaw,	Cumberland and Elk Creek Coal Company,	Somerset,	A. Chamberlin,	Meyersdale, Somerset county.
Salisbury,	Salisbury Coal Company,	do.	Thomas Williams,	Elk Lick P. O., Somerset county.
Tip Top,	H. C. Frick Coke Company,	Fayette,	Robert Ramsay,	Mt. Pleasant, Westmoreland county.
Tyrone,	Laughlin & Co.,	do.	C. Wharton,	Broadford, Fayette county.
Trotter,	H. C. Frick Coke Company,	do.	Robert Ramsay,	Mt. Pleasant, Westmoreland county.
Tub Mill Run,	Fairview Coal Company,	Somerset,	Thomas Rees,	Meyersdale, Somerset county.
Uniondale,	Reid Bros.,	Fayette,	J. M. Reid,	Dunbar, Fayette county.
Valley,	H. C. Frick Coke Company,	do.	Robert Ramsay,	Mt. Pleasant, Westmoreland county.
Wheeler,	Cambria Iron Company,	do.	James F. Beattie,	Connellsville, Fayette county.
White,	H. C. Frick Coke Company,	do.	Robert Ramsay,	Mt. Pleasant, Westmoreland county.
Youngstown,	Youngstown Coke Company, Limited,	do.	Frank R. Bradford,	Uniontown, Fayette county.

*Mines not working.

TABLE II.—*Showing Character of Coal, Production, Number of Employés, Days Employed, Casualties, &c., in the Fifth Bituminous Mine District, for the year ending December 31, 1885.*

COLLIERIES.	Operators.	Character of Coal, Anthracite or Semi-Anthracite, Bituminous or Semi-Bituminous.	Drift, Slope or Shaft.	Number of inside workmen.	Number of outside workmen.	Total employees.	Number of days worked inside.	Number of days worked outside.	Number of horses and mules.	PRODUCTION.		CASUALTIES.				
										Number of tons produced.	Number of tons shipped.	Killed inside.	Killed outside.	Injured inside.	Injured outside.	Total killed and injured.
Anchor,	Laing & Davidson,	Bituminous,	Slope,	30	28	58	260		6							
Berlin,																
Buffalo Creek,																
Clinton, (See Franklin,)	B. F. Keister & Co.,	Bituminous,	Drift,													
Coal Brook,	J. R. Torrance & Co.,	do.	"	24	16	40	260		6							
Cora,	J. M. Newmeyer & Son,	do.	"	10	12	22	240		3							
Clarissa,	James Cochran & Son,	do.	"	54	38	92	301		5							
Connellsville,	Pitts. & Connellsville G. C. Co.,	do.	Shaft,	125	100	225	262		18							
Casselman,	Casselman Coal Company,	do.	Slope,	25	4	29	300		2							
Cochran,	James Cochran,	Semi-bituminous,	Drift,	18	3	21	240		2							
C. and E. L. C. Company,	C. and E. L. Coal Company,	do.	"	48	5	53	165		3					3		3
Diamond,	McClure & Co.,	Bituminous,	"	12	15	27	200		3							
Dexter,	J. R. Stauffer & Co.,	do.	"													
*Dunbar Coke Works,																
Eagle,	H. C. Frick Coke Company,	Bituminous,	Drift,	26		26	262		3							
Furnace,	Charlotte Furnace Company,	do.	"	25		25	80		7							
Foundry,	H. C. Frick Coke Company,	do.	"	32		32	262		4							
Frick,	do. do.	do.	"	39		39	262		6							
Franklin and Clinton,	B. F. Keister & Co.,	do.	"	25	23	48	259		5							
Fort Hill,	W. I Rainey,	do.	"	44		44			6							
*Ferguson,	Dunbar Furnace Company,		Slope,													
Fairchance,	Fairchance Iron Company,	Bituminous,	Drift,	21		21			3							
Flog Hill,	Fairview Coal Company,	Semi-bituminous,	"	100	20	120	200		9							
Fairview,	do. do.	do.	"	100	20	120	200		9							
Fayette,	Fayette Coke and Furnace Co.,	Bituminous,	Slope,	52	9	61	274		5							
Grace,	W. I. Rainey,	do.	"	35	8	43			5							
Hill Farm,	Dunbar Furnace Company,	do.	"	55	30	85	310		11							
Hoblitzell,	Baltimore and Cumb'd Coal Co.,	Semi-bituminous,	"	33	4	37	200		4							
Hocking,	Hocking Coal Company,	do.	Drift,	25	2	27			2							
Hagan & Whyel,	Hagan & Whyel,	Bituminous,	"	16	2	18	275		2							
Henry Clay,	H. C. Frick Coke Company,	do.	"	48	2	50	166		7							
Jackson,	Jackson Mines Company,	do.	"	23	2	25			4							
Kifer,	W. A. Kifer,	do.	"													

Keystone,	Keystone Coal Company,	Semi-bituminous,	"	11	5	16	202		4							
Kyle Farm,	Bliss & Marshall,	Bituminous,	"	20	15	35	260		4							
Leisenring, No. 1,	Connellsville Coal and Iron Co.,	do.	Shaft,	160	110	270	262		21							
Leisenring, No. 2,	do. do. do.	do.	"	110	70	180	262		16							
Lemont,	Robert Hogsett,	do.	Slope,	40	20	60	312		6							
Leith,	Chicago & Connellsv'e Coke Co.,	do.	Shaft,	158	12	170			15					2		2
Morgan,	H. C. Frick Coke Company,	do.	Drift,	55		55	262		6							
Morrell,	Cambria Iron Company,	do.	Slope,	160	150	310	312		34			1		3		4
*Mount Braddock,																
Mahoning,	Cambria Iron Company,	Bituminous,	Slope,	39	6	45			5							
Nelly,	Brown & Cochran,	do.	Drift,	48	38	86	142		7							
Painter,	McClure & Co.,	do.	"	30	40	70	216		10							
Plumer, (See Connellsville Shaft,)	Pitts. & Connellsville G. C. Co.,	do.	"													
Pennsville,	A. M. Sherrick,	do.	"	26	3	29			2							
Percy,	Percy Mining Company,	do.	Slope,	40	30	70	312		8							
*Philson Iron Company,	Philson Iron Company,															
Redstoue,	Redstone Coke Company,	Bituminous,	Slope,	172	12	184			12							
Rist,	H. C. Frick Coke Company,	do.	"	50	2	52	110		5							
Summit, Nos. 1 and 2,	do. do.	do.	Drift,	55	2	57	262		6							
Sterling, Nos. 1, 2, 3, & Jimtown,	J. M. Schoonmaker,	do.	Slope,	124	102	226	263		24							
*Spring Grove,																
Stewart Iron Company,	Stewart Iron Company,	Bituminous,	"	65	75	140	275		7							
Tip Top,	H. C. Frick Coke Company,	do.	Drift,	22	1	23	21		4							
Tyrone and Washington,	Laughlin & Co.,	do.	"	47	33	80	312		14							
Trotter,	H. C. Frick Coke Company,	do.	Shaft,	168	8	176	262		15							
Tub Mill Run, (See Fairview,)	Fairview Coal Company,	Semi-bituminous,	Drift,													
Uniondale,	J. M. Reid,	Bituminous,	Slope,	20	30	50	252		4							
Valley,	H. C. Frick Coke Company,	do.	Drift,	62	5	67	264		8							
White,	do. do.	do.	"	48		48	80		5							
Wheeler,	Cambria Iron Company,	do.	Slope,	40	67	107	312		15			1		1		2
Youngstown,	Youngstown Coke Company,	do.	"	75	75	150	312		20							
Grand totals,				2,790	1,234	4,024			408			2		9		11

*Not working.

TABLE III.—*Showing methods of ventilation, size of fans and furnaces, size of inlets and outlets, number of headings, number of openings, and the air measurements taken at the collieries in the Fifth Bituminous Mine District.*

COLLIERIES.	Ventilation—Natural, Furnace, or Fan.	Number of openings.	Diameter of fan in feet.	Size of furnace in feet.	Size of inlet in square feet.	Size of outlet in square feet.	Number of headings.
Anchor,	Exhaust steam,	2			49	36	2
Clintou,	Furnace,	3		6x5	56	56	2
Coal Brook,	Natural,	3			25	48	2
Clarissa,	Natural,	3			42	42	4
Connellsville Shaft,	Fan,	2	6		44	72	
Casselman.							
Cochran.							
C. & E. L. Coal Co.'s Mines,	Furnace,			7x5	54	45	4
Diamond.							
Dexter.							
Dunbar Coke Works.							
Eagle,	Furnace,	3			63	81	
Fayette,	Furnace,	2			81	81	5
Furnace.							
Foundry,	Exhaust steam,			9x7			
Frick,	Natural,				63	56	
Frauklin,	Natural,	2			56	56	3
Fort Hill,	Natural,	2			56	56	6
Ferguson.							
Fairchance.							
Flog Hill,	Natural,	4			35	63	1
Fairview,	Natural,	3			63	60	3
Grace,	Furnace,	3			64	60	14
Henry Clay,	Natural,	3			56	42	
Hill Farm,	Exhaust steam,	2			34	42	
Hoblitzell	Exhaust steam,	2			36	40	3
Hocking,	Natural,				72	63	
Jackson,	Natural,				48	63	
Kyle Farm,	Natural,	3			48	48	6
Leisenring, No. 1,	Fan,	2	20		100		
Leisenring, No. 2,	Fan,	2	20		88	64	
Lemont,	Exhaust steam,	2			56	56	
Leith,	Fan,	2	20		56	84	35
Mahoning,	Exhaust steam,	3			56	42	3
Morgan,	Furnace,			9x7	54	49	
Morrell,	Fan and exhaust steam,	4	8		100	105	12
Nelly,	Natural,	2			48	48	2
Painter,	Furnace,	3			48	12	2
Pennsville,	Natural,	2			49	20	
Percy,	Furnace,	2		6x6	81		
Plumer,	Furnace,	2		6x6	64	64	2
Redstone,	Natural,	2			48	54	
Rist,	Natural,	3			56	42	
Summit and Eagle,	Furnace,			8x7	48	54	
Sterling, Nos. 1, 2, and 3,	Natural,	4			56	49	8
Stewart Iron Co.'s Mines,	Exhaust steam,	2			49	63	5
Tip Top.							
Tyroue,	Natural,	3			56	56	2
Trotter,	Fan,	2	25		56	63	
Tub Mill Run,	Natural,	2			63	63	
Uniondale,	Exhaust steam,	2			45	80	3
Valley,	Furnace,	3		8x22	49	49	
White,	Furnace,			6x7			
Wheeler,	Fan,	4	6		56	64	6
Youngstown,	Exhaust steam,	4			64	77	8

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	NOVEMBER—1884.						DECEMBER—1884.					
	Velocity of air current per minute at inlet.	Number of cubic feet pssing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Carondelet,	185	11,340	200	8,400	185	9,065	200	12,800	195	8,190	175	8,575
Clarissa,	350	18,600			360	20,160						
Casselman,												
Eagle,				11,900	470	33,070			80	4,480	640	51,840
Foundry,	230	12,420	60	3,360	380	21,280	440	23,760	150	8,400	450	25,200
Frick,		11,520			210	11,340		15,930				22,800
Franklin,	173	9,688	168	9,408	264	14,784	145	8,120	123	6,888	176	9,856
Fayette,	200	16,200	150	12,150	340	19,040	240	17,280	160	11,520	360	20,160
Fairchance,	300	16,800			450	18,900	84	4,704	60	3,480	50	800
Fairview,		8,200		8,200		8,000						9,600
Grassy Run,												
Henry Clay,		6,720	100	4,900	100	9,800		21,000	210	10,290	230	22,540
Hoblitzell,						3,600		3,700		3,700		4,200
Leisenring, No. 1,		53,900	240	15,360		55,000		53,900	270	17,280		54,600
Leisenring, No. 2,	695	61,160	332	20,916	895	59,070	508	44,704	260	16,580	653	48,098
Leith,		34,560	310	17,360	810	34,020		33,920	160	8,960		33,600
*Little Pittsburgh,												
Morgan,	350	18,900	100	5,600	350	21,280	440	23,760	150	8,400	450	25,200
Morrell,	620	62,000	208	13,312	590	61,950	601	60,100	202	12,928	572	59,960
Plumer,	280	18,240	140	8,960	275	17,600	290	17,560	140	8,960	280	17,920
Redstone,	178	11,748	177	8,496	355	18,105						
Summit,		30,200	850	11,900	530	42,930		14,930	260	14,560	640	51,840
Shaft,	630	27,720	160	10,240	330	23,760	530	24,200	165	10,560	280	20,160
Sterling,	197	11,032	123	6,888	158	8,843						
Snow Hill,	460	27,600	430	20,640	440	29,040	450	27,000	360	19,440	420	27,720
Shaw,		16,100	160	9,000	444	16,000		19,890	236	13,320	505	18,200
Tyrone,	275	15,400	275	15,400	290	16,240	150	8,400	150	8,400	225	12,600
Trotter,	530	31,800	400	19,200	560	33,600	520	31,200	420	20,160	550	33,000
Tremont,	215	10,535	150	8,237	390	11,937	215	9,535	150	4,800	390	21,780
Uniondale,	310	13,020	70	3,920	120	5,040	390	16,380	130	7,280	250	10,500
Valley,		26,810		9,400	620	30,380		41,580		21,720	960	47,040
Wheeler,	365	24,550	98	6,372	380	24,320	402	25,728	94	6,016	401	25,664
Youngstown,		73,056										

* Reports air good.

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Anchor,	510	21,420	300	12,600	560	23,520	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Brown,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	3,800	. . .	. . .	. . .	4,100	. . .	3,900	. . .	. . .	. . .	4,200
Clarissa,	. . .	. . .	. . .	. . .	. . .	. . .	320	17,920	107	5,973	340	19,040	. . .	. . .	. . .	. . .	. . .	. . .
Casselman,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	6,144	. . .	. . .	. . .	6,144	. . .	. . .	. . .	. . .	. . .	. . .
Clinton,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Connellsville Shaft,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Cochran,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Coal Brook,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
C. & C. L. Coal Company's Mines,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Diamond,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	9,400	. . .	2,820	. . .	6,240
Dexter,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dunbar Coal Works,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Eagle,	420	26,460	250	14,000	460	37,260	. . .	28,620	. . .	11,400	. . .	44,550	. . .	14,490	. . .	. . .	. . .	47,790
Everett,	. . .	. . .	. . .	. . .	. . .	. . .	600	25,200	210	8,400	530	25,970	. . .	. . .	. . .	. . .	. . .	. . .
Foundry,	440	23,760	320	17,920	570	28,860	420	22,680	360	20,160	470	23,030	370	19,980	210	11,760	440	23,760
Frick,	. . .	14,840	. . .	. . .	. . .	17,950	. . .	13,500	. . .	. . .	. . .	12,180	. . .	9,510	. . .	. . .	. . .	10,400
Franklin,	103	5,768	94	5,264	126	7,056	121	6,776	109	6,104	146	8,176	128	7,168	117	6,552	216	12,096
Fayette,	300	21,600	200	14,400	360	25,920	200	14,400	140	10,080	300	21,600	240	17,280	150	12,100	320	23,040
Fairchance,	80	4,480	50	2,800	55	880	95	5,320	54	3,024	56	896	80	4,480	51	2,958	50	800
Fairview,	. . .	9,300	. . .	9,300	. . .	9,200	. . .	9,300	. . .	. . .	. . .	9,150	. . .	8,800	. . .	8,800	. . .	8,600
Fort Hill,	420	26,880	400	25,600	395	25,280	401	25,664	362	23,168	392	25,088	315	20,160	308	19,712	312	19,968
Furnace,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Flog Hill,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Ferguson,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Grace,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Hoblitzell,	. . .	3,700	. . .	3,700	. . .	3,700	. . .	. . .	. . .	. . .	. . .	3,700	. . .	. . .	. . .	. . .	. . .	. . .
Hill Farm,	520	37,000	400	17,000	400	17,000	400	36,000	600	45,000	450	46,000	. . .	. . .	. . .	. . .	. . .	. . .
Henry Clay,	440	19,320	230	11,270	200	19,600	280	10,500	180	8,820	120	11,760	200	19,600	330	16,170	510	21,420
Hocking,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Jackson,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Kyle Farm,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

Leisenring, No. 1	800	52,800	260	16,640	. . .	51,940	850	56,100	270	17,280	. . .	51,100	850	56,100	265	17,490	. . .	52,290
Leisenring, No. 2	745	65,560	293	18,459	935	65,670	690	58,740	290	18,270	850	56,100	620	54,560	233	14,679	780	51,480
Leith	. . .	38,600	320	17,920	. . .	38,640	. . .	31,400	260	14,560	. . .	38,600	. . .	37,280	330	18,480	. . .	37,380
Little Pittsburgh	. . .	reports air	good	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Lemont	. . .	. . .	. . .	. . .	. . .	. . .	192	10,952	94	5,076	208	11,618	146	8,176	85	4,590	156	8,736
Mahoning	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Morgan	410	23,760	320	17,920	570	28,860	420	22,680	360	20,160	470	23,030	370	19,980	210	11,760	440	23,760
Morrell	645	64,500	215	13,720	614	64,470	896	89,600	315	20,160	853	89,560	544	54,400	200	12,800	518	54,390
Nelly	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Plumer	290	18,560	140	8,960	280	17,920	290	18,560	140	8,960	280	17,920	290	18,560	140	8,960	280	17,920
Painter	. . .	9,800	. . .	3,700	. . .	8,200	. . .	. . .	. . .	. . .	. . .	. . .	. . .	7,820	. . .	2,640	. . .	8,200
Pennsville	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Percy	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Redstone	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Rist	. . .	. . .	. . .	. . .	. . .	. . .	323	21,316	212	11,672	392	18,806	. . .	. . .	. . .	. . .	. . .	. . .
Summit	. . .	34,780	250	14,000	460	37,260	. . .	23,160	. . .	11,760	. . .	44,550	. . .	31,500	. . .	15,820	. . .	47,790
Shaft	620	27,280	170	10,880	310	22,320	545	23,980	135	8,640	280	20,160	570	25,080	150	9,600	290	20,880
Sterling	192	10,752	108	6,048	178	9,968	173	9,688	115	6,440	146	8,576	183	10,248	103	5,768	156	8,736
Shaw Mines	. . .	12,400	152	8,000	200	7,200	. . .	12,400	. . .	8,000	. . .	12,000	. . .	12,400	. . .	8,500	. . .	12,000
Stewart Coke Works	115	10,350	153	7,344	170	11,900	115	10,350	180	8,640	240	16,800	148	13,320	170	8,160	210	14,700
Tip Top	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Tyrone	300	16,860	300	16,800	600	28,000	200	11,200	200	11,200	350	19,600	200	11,200	200	11,200	300	16,800
Trotter	570	34,200	400	19,600	580	34,800	590	35,400	450	22,050	600	36,000	580	33,600	400	19,200	570	34,200
Tremont	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	150	8,400	125	6,990	415	19,980
Tub Mill Works	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Umpire	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Uniondale	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Valley	. . .	21,340	. . .	10,480	480	23,520	500	24,500	. . .	16,800	570	27,930	520	25,480	160	8,960	600	29,400
Wheeler	406	25,948	116	7,424	462	25,872	400	25,600	115	7,360	393	25,672	400	25,600	122	7,808	398	25,472
White	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	22,260	160	8,960	. . .	17,880
Youngstown	. . .	62,030	. . .	. . .	. . .	56,880	. . .	56,239	. . .	. . .	. . .	54,110	. . .	. . .	. . .	. . .	. . .	. . .

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	APRIL.						MAY.						JUNE.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Anchor,																		
Brown,																		
Clarissa,	280	15,680	106	5,973	320	17,920												
Casselman,																		
Clinton,	176	9,856	154	8,624	194	10,864	173	9,688	155	8,680	187	10,472						
Connellsville Shaft,																		
Cochran,																		
Coal Brook,																		
C. & C. L. Coal Company's Mines,																		
Diamond,																		
Dexter,																		
Dunbar Coal Works,																		
Eagle,			970	13,580	520	42,120												
Everett,																		
Foundry,	330	17,820	250	14,000	490	24,010	370	19,980	240	13,440	460	12,540						
Frick,	140	6,860			120	6,480	120	6,480			140	6,860						
Franklin,	88	4,928	71	3,976	96	5,376	113	6,328	92	5,152	126	7,056						
Fayette,	300	24,300	240	19,440	340	21,760												
Fairchance,																		
Fairview,		8,400				8,600												
Fort Hill,							252	16,128	230	14,720	245	15,680						
Furnace,																		
Flog hill,																		
Ferguson,																		
Grace,																		
Hoblitzell,																		
Hill Farm,																		
Henry Clay,	110	10,780	200	9,800	320	13,440	160	15,680	280	13,720	340	13,880						
Hocking,																		

Jackson,																		
Kyle Farm,																		
Leisenring, No. 1,		44,940	200	12,800		45,430		54,040	240	15,360		54,360						
Leisenring, No. 2,	735	64,680	305	19,215	945	62,370	718	63,184	247	15,561	940	62,040						
Leith,		35,960	300	16,800		35,700												
Little Pittsburgh,																		
Lemont,	240	13,440	162	10,206	255	14,280	194	10,864	130	8,190	262	11,212						
Mahoning,																		
Morgan,	330	17,820	250	14,000	490	24,010	370	19,980	240	13,440	460	12,540						
Morrell,	500	50,000	195	12,480	476	49,980	560	56,000	200	12,800	533	55,965						
Nelly,																		
Plumer,	260	16,640	140	8,960	255	16,320	290	18,560	140	8,960	280	17,920						
Painter,							280	13,720	220	10,780	250	9,000						
Pennsville,																		
Percy,																		
Redstone,																		
Rist,																		
Summit,			970	13,580	520	42,120		28,230	980	13,720	580	46,980						
Shaft,	570	25,080	140	8,960	310	22,320	540	23,760	145	9,280	310	22,320						
Sterling,	188	10,525	177	9,912	168	9,408												
Shaw Mines,								10,000		5,000		9,500						
Stewart Coke Works,																		
Tip Top,																		
Tyrone,																		
Trotter,		63,280	420	19,360		56,640		70,880		20,000		67,560						
Tremont,	150	8,400	130	7,280	400	22,400	100	8,000	120	6,720	390	21,840						
Tub Mill Works,																		
Umpire,	260	13,740	260	13,650	260	13,650												
Uniondale,																		
Valley,	730	35,770	190	10,640	780	37,620	590	28,910	180	10,080	660	32,340						
Wheeler,	405	25,920	129	8,256	403	25,792	360	23,040	115	7,630	352	22,528						
White,		15,540	130	8,190		16,680												
Youngstown,		3,880				51,840												

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Anchor,	...	...	...	...	...	...	...	...	...	...	...	...	171	9,576	154	8,624	182	10,192
Brown,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Clarissa,	...	...	...	...	...	...	...	...	...	...	...	...	225	12,600	125	7,000	125	7,000
Casselman,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Clinton,	144	8,064	131	7,336	152	8,512	...	...	...	...	...	...	171	9,576	154	8,624	182	10,192
Connellsville Shaft,	...	...	...	...	...	...	470	20,680	150	10,240	270	19,440	450	19,800	140	8,960	240	17,280
Cochran,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Coal Brook,	...	...	...	...	...	...	...	...	...	...	...	...	155	3,100	...	...	130	6,240
													150	3,750				
C. & C. L. Coal Company's Mines,	...	...	...	...	...	...	311	14,116	121	6,776	168	14,112	311	11,200	121	6,720	163	14,112
													81	2,916				
Diamond,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dexter,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dunbar Coal Works,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Eagle,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Everett,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Foundry,	...	...	...	...	...	...	400	12,000	150	8,400	430	21,070	130	8,190	120	6,720	570	27,930
													350	10,500				
Frick,	...	...	...	...	...	...	210	11,760	...	...	110	6,930	70	3,920	...	...	130	7,280
											76	3,920	80	5,040				
Franklin,	76	4,256	58	3,248	92	5,152	...	...	...	...	...	...	77	4,312	58	3,248	96	5,376
Fayette,	...	...	...	...	...	...	...	...	...	...	...	...	200	16,200	160	12,960	300	16,800
Fairchance,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fairview,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fort Hill,	240	15,360	200	12,800	235	15,040	...	...	...	...	...	...	...	...	...	...	...	...
Furnace,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Flog Hill,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ferguson,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Grace,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hoblitzell,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hill Farm,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Henry Clay,							80	7,840	110	6,160	190	7,980	280	15,680	200	11,200	390	16,380
Hocking,																		
Jackson,																		
Kyle Farm,																		
Leisenring, No. 1,							400	31,500	384		1,200	57,600	460	32,200	240	15,120	1,150	55,200
							350	22,050	480				300	18,900				
Leisenring, No. 2,							438	27,594	190	11,570	945	62,370	395	34,760				
							426	37,488					445	28,035	218	13,743	1,265	60,680
Leith,							800	44,800	400	22,400	810	34,020	870	48,720	520	29,120	640	26,880
													380	15,200			440	36,960
Little Pittsburgh,																		
Lemont,		11,424	159	10,017	242	13,552	127	7,112	154	9,702	276	1,556	186	10,416	235	14,855	316	17,696
							102	5,712					93	5,208				
Mahoning,																		
Morgan,																		
Morrell,	614	61,400	205	13,120	584	61,340	530	53,000	198	12,672	504	52,920	463	46,300	187	11,968	440	46,200
Nelly,																		
Plumer,							290	18,560	140	8,960	280	17,920	290	18,560	140	8,960	280	17,920
Painter,													120	5,880	40	2,240	220	3,960
													130	5,460	70	2,632	50	4,026
Pennsville,																		
Percy,																		
Redstone,																		
Rist,																		
Summit,							260	16,380	830	11,620	490	39,690	190	11,970	980	13,720	410	33,210
							270	15,120					280	15,680				
							830	11,620					980	13,720				
Shaft,																		
Sterling,							250	14,875	145	8,627	160	9,520	245	14,577	147	8,746	160	9,520
Shaw Mines,		14,116		6,776		14,112												
Stewart Coke Works,	150	13,500	170	8,160	180	12,600												
Tip Top,																		
Tyrone,							140	7,840	140	7,840	160	8,960	150	8,400	150	8,400	200	11,200
Trotter,							650	33,500	260	14,560	350	34,650	620	34,720	260	14,560	600	28,800
							660	33,960	380	21,250	370	32,160	650	38,800	400	22,400	460	28,980
Tremont,																		
Tub Mill Works,																		
Umpire,	240	11,760	240	12,600	255	13,887												
Uniondale,																		
Valley,							540	26,460	130	7,280	600	29,400	390	19,110	130	7,280	430	21,070
Wheeler,	364	28,296	95	6,080	362	23,168	400	25,600	140	8,960	398	25,472	310	22,320	108	9,560	475	26,075
White,																		
Youngstown,													350	39,020	160	8,960	610	46,970
															300	19,200		
															240	13,400		

TABLE III.—VENTILATION OF COLLIERIES.—*Continued.*

NAME OF COLLIERY.	OCTOBER.						NOVEMBER.						DECEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Anchor,							210	11,760	190	10,640	290	16,240	290	16,240	290	14,210	345	18,905
Brown,																		
Clarissa,							300	14,400	75	3,600	300	14,400	260	17,289	90	4,320	400	19,200
Casselman,																		
Clinton,							168	9,408	146	8,176	172	9,636	173	9,688	168	9,408	184	10,304
Connellsville Shaft,	540	23,760	180	10,080	270	19,440	570	25,080	180	10,080	320	23,040	540	23,760	160	8,960	300	21,600
Cochran,													100	8,000				
Coal Brook,								5,760				7,750		6,000				7,000
C. & C. L. Coal Company's Mines,							233	19,572	118	6,608	541	19,476	161	13,944	83	5,229	387	13,936
Diamond,													300	12,600	100	5,600	235	5,592
															50	2,800	310	2,790
Dexter,																		
Dunbar Coal Works,																		
Eagle,							210	13,230	1,110	15,540	560	43,360	140	7,560	950	13,300	530	42,930
													220	13,860				
Everett,																		
Foundry,							380	7,448	140	7,840	460	22,540	320	17,280	220	13,360	490	24,010
Frick,							140	8,820	110	6,160	160	8,960	140	7,840	220	12,320	266	16,380
											100	5,600	260	14,560			190	10,640
Franklin,							106	5,936	87	4,872	124	6,944	116	6,496	103	5,763	124	6,944
Fayette,	240	19,440	140	11,340	360	19,160	240	19,440	140	11,320	360	20,160	240	19,440	140	11,340	360	20,160
Fairchance,																		
Fairview,								7,800		7,200		7,800		13,400		13,000		13,800
Fort Hill,							360	20,160	180	11,520	335	18,760	300	19,200	200	12,800	390	24,960
Furnace,																		
Flog Hill,								9,720		9,720		9,880		12,800		12,400		13,000
Ferguson,																		
Grace,							80	5,120			500	30,000						
Hoblitzell,							160	6,400					225	4,000				
Hill Farm,							470	15,860	400	12,000	910	38,220	450	15,187	700	15,925	970	40,740
									720	16,380								

Henry Clay,									320	17,920	300	16,800	400	16,800	290	12,180	200	11,200	240	13,440
Hocking,										9,000				9,000		7,000				6,000
Jackson,															150	7,200			200	12,600
Kyle Farm,									130	6,240	50	2,400	150	7,200	90	4,095	55	3,960	500	21,000
Leisenring, No. 1,	600	42,000	210	13,280					600	42,000	220	13,860	1,400	67,200	1,400	67,200	220	13,860	300	65,000
	350	22,050	440	27,720	1,460	70,080	340	21,420	400	25,200							880	23,940	500	
Leisenring, No. 2,	375	33,000	250	15,750	1,240	59,520	410	36,080	190	11,970	1,380	66,240	1,390	66,720	235	14,805	540	34,020		
	450	28,350					460	28,980									380	23,940		
Leith,							910	50,960	650	36,400	740	31,080	900	50,400	680	38,080	770	32,340		
							3,800	15,200			420	35,280	3,800	15,400			400	33,600		
Little Pittsburgh,																				
Lemont,							209	11,704	240	15,120	329	18,424	186	10,416	272	17,036	370	20,720		
							104	5,624					160	8,960						
Mahoning,							180	10,080	260	16,640	780	32,760	330	21,120	140	8,960	630	26,460		
Morgan,							200	6,000	140	7,840	460	22,540	320	17,280	220	13,860	490	24,010		
Morrell,							633	63,300	220	14,080	602	63,210	640	64,000	223	13,272	609	63,945		
Nelly,							250	12,000	250	12,000	250	12,000	300	14,400	300	14,400	300	14,400		
Plumer,	290	18,560	140	8,960	280	17,920	290	18,560	140	8,960	280	17,920	340	21,760	140	8,960	330	21,120		
Painter,							135	6,615	100	4,950	400	4,800	160	7,840	70	7,840	240	11,520		
													120	5,040	45	5,040				
Pennsville,																				
Percy,								10,521				15,428		16,200						21,600
								7,838				5,460		10,125						7,875
Redstone,							300	14,544			321	17,314	250	12,000	132	7,392	336	16,128		
Rist,							320	17,920	300	16,800	400	16,800	290	12,180	200	11,200	240	13,400		
Summit,							1,150	16,100	1,150	16,660	560	43,360	380	21,280	950	13,300	530	43,930		
													950	13,300						
Shaft,																				
Sterling,							245	13,720	140	7,840	180	10,080	310	17,300	190	10,648	243	13,608		
							210	11,760	135	8,032	165	9,817	293	16,408	200	11,900	227	13,500		
Shaw Mines,																				
Stewart Coke Works,							200	9,800	170	7,650	200	12,600	230	11,270	170	15,980	270	17,010		
									160	7,840										
Tip Top,													210	6,720	240	6,720	590	21,240		
													170	12,240						
Tyrone,							340	19,040	300	16,800	440	24,640	340	19,020	300	16,800	400	22,400		
Trotter,							640	33,180	210	12,600	580	36,540	670	34,840	280	16,800	600	37,800		
							520	29,120	400	22,400	580	27,840	500	28,000	400	22,400	650	31,200		
Tremont,																				
Tub Mill Works,								9,334		9,200		9,400		12,600		12,000		12,600		
Umpire,																				
Uniondale,																				
Valley,							550	31,850	360	16,800	730	35,770	610	29,890	280	15,680	650	31,850		
Wheeler,							335	24,120	115	8,050	411	23,427	340	24,480	170	8,428	418	23,826		
									190	9,310					130	9,100				
White,													360	22,680	180	8,640	380	22,800		
																	240	5,780		
Youngstown,							230	14,720	230	12,880	630	48,510	820	20,480	340	19,040	670	51,590		
							390	16,380	320	20,480			195	7,760	180	11,520				
													430	18,060	300	14,700				

TABLE IV.—*List of accidents occurring in the mines of the Fifth Bituminous Mine District for the fourteen months ending December 31, 1885.*

Date of accident.	NAME OF PERSON INJURED.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident.
Aug. 3	Mich. Ondof,	35	Married,		Morrell,	Fayette,		Arm crushed by loaded car.
Sept. 2	Henry Michaels,		Married,		C. and E. L. Coal Co. Mine,	Somerset,		Leg broken.
Sept. 12	Peter Burr,	37	Married,		Leith,	Fayette,		Caught between pit cars; leg broken.
26	Thomas Welsh,	38	Married,	4	Wheeler,	do.		Killed by fall of roof.
26	W. H. Stapleton,	26	Married,		Morrell,	do.		Injured neck and breast between car and rib.
Oct. 2	Henry Burns,	30	Single,		Morrell,	do.		Body bruised; squeezed between car and rib.
6	Henry Plangaman,		Married,		C. and E. L. Coal Co. Mine,	Somerset,		Foot injured.
20	Frank Dawson,	19	Single,		Leith,	Fayette,		Body injured by mine car.
28	Martin Coulehan,		Married,		C. and E. L. Coal Co. Mine,	Somerset,		Rib fractured.
Nov. 10	Frank Derry,	30	Single,		Wheeler,	Fayette,		Ribs and back injured by fall of roof coal.
Dec. 10	Patrick Connelly,	38	Married,	5	Morrell,	do.		Killed by fall of roof coal.

SIXTH DISTRICT.

To the Honorable J. Simpson Africa, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania:*

Sir: I have the honor herewith of submitting to you my report of the condition in which I find the mines of the district since my appointment as inspector, along with other necessary information required to complete the report of the district, for the year ending December 31, 1885. It now comprises the counties of Cambria, Blair, Huntingdon, Bedford, Fulton, Indiana, and that part of Westmoreland county lying along the main line of the Pennsylvania railroad east of Beatty station, and that part of Clearfield county lying along and adjacent to the Bell Gap railroad.

This being the first annual report submitted under the new mine law, it gives me great pleasure to say that it seems to give general satisfaction, and is undoubtedly producing good results, as it has aroused some of our mining men to a true sense of their duty, that of educating themselves more thoroughly in the theory of mining. This alone is sufficient evidence to me that it will have the desired effect, that of increasing the safety and sanitary condition of our mines, so that this desire for a more thorough knowledge upon the subject of mining by those having charge of mines, in conjunction with the efforts that are being put forth by most of the operators of this district in improving their ventilation and making safe their traveling roads, gives me hope of success in carrying out the provisions of the law.

I am glad to be able to report a decrease in the accidents of the district, of both fatal and non-fatal, during the past year, 1885.

From that clause in our new mine law making it obligatory on our mine-bosses to visit every working place in the mine at least once every alternate day and make examinations, I expect very good results, in decreasing our accident lists, and in connection with that, good rules, defining the duties of those employed in the mine, will undoubtedly have a tendency to reduce the casualties in our mines. Having been requested by so many of those having charge of our mines to write out a code of rules of the kind I thought would be required by the law, I finally did, and had them printed, so that those requiring them could have them by writing to me. A copy of these I inclose, along with a copy of a circular letter which I sent to the different mines in the district before starting out to examine, for insertion in my report.

MINING STATISTICS FOR THE YEAR 1885.

Number of mines in the district,	70
Number of persons employed inside,	3, 220

Number of persons employed outside,	658
Total number of persons employed,	3,878
Number mules inside and outside,	375
Number of fatal accidents,	4
Number of non fatal accidents,	11
Number of tons, (2,000 lbs.,) mined during the year,	2,605,028
Average number of days worked during year,	252
Average price paid per ton, for mining, in cents,	36
Number of tons mined per fatal accident,	651,257
Number of tons mined per non-fatal accident,	236,821
Number of coke ovens in the district,	1,502
Number built during the year,	296

Having received reports from all the operators in the district except four, I consider these statistics almost absolutely correct.

In addition to the tables accompanying this report, will be found a description given of the mines visited during my term of office; also, photographs of Gallitzin slope, located in Cambria county, kindly furnished by James Mitchel, general manager of the Gallitzin Coal and Coke Company's mine, all of which is respectfully submitted.

Yours, very respectfully,

JOSIAH EVANS.

JOHNSTOWN, *February 1, 1886.*

Monastery.

This mine is located west of Latrobe, and operated by H. C. Frick & Co., and gives employment to seventy-nine men. Upon examination of the mine, I found the ventilation and the drainage good the system of mining is double heading. Those in charge have made a big improvement during the year in the entrance to and along the slope, by having all the old timber taken out and replaced by new, and a new track of heavy T iron put down on the slope. This has made an improvement in the appearance as well the safety of the slope. Superintendent, G. S. Ramsey; mine-boss, Robert Hare.

Latrobe Coal Works.

Operated by the Lathrobe Coal Company. Superintendent, D. W. Jones; mine-boss, Alex. Snedden. This mine has been making improvements during the year, by having a new shaft sunk, by which to increase the ventilation and the drainage of the mine. This is a slope opening, but has also three other openings. The ventilation and drainage of this mine are in reasonably good condition. They employ here sixty-six men and boys.

Loyalhanna Shaft.

This mine is operated by the Loyalhanna Coal and Coke Company. Su-

perintendent, William Dovey; mine-boss, J. C. Dovey. The drainage and ventilation of the mine are in fair condition. Those in charge are making a change in their haulage, and are now putting in a large double engine at the bottom of the shaft, and making a turn-out four hundred feet in length for holding their cars, which will be timbered with twelve-inch square timber. They are going to do their hauling by the tail-rope system. Length of haul for the present will be three thousand six hundred feet, up a grade of one foot to the hundred feet. They will handle thirty cars at each trip, but have sufficient power to haul sixty, if necessary. The steam will be supplied from boilers on the surface; they expect to have it in operation by the 1st of March; this will enable those in charge to conduct the ventilation and drainage to a much better advantage.

M. Saxman.

Operated by M. Saxman & Co. Superintendent, F. Kurnan. This mine has excellent drainage, but upon my first examination of it, I did not find the ventilation good, but upon my second visit, I found it much better; in fact, all that was required to make the air pure, and would say all that is necessary further is a good furnace for ventilation. Mine-boss, James Pratt.

Ridge View

Is located at Bradenville, and operated by D. C. George. This mine is worked by a drift; ventilation is natural and rather defective. I examined the mine twice, and found the ventilation rather weak each time. The drainage is very good. I notified the superintendent, D. C. George, of the defects in the ventilation, and he promised that he would put in a furnace; this will then give them sufficient ventilation, as the mine is not very extensive. System of mining is double-heading. Mine-boss, Jacob Shanafelt.

St. Clair

Is operated by the St. Clair Coal and Coke Company, and located at Bradenville. This mine is ventilated by a furnace, and upon examination, found the ventilation excellent, but the drainage is not so good. I found here a mine-boss who sees to having his doors and air-stoppings well put up, and as near as is practicable to being air-tight, so as to carry the air to the face of the works. The system of mining is double-heading. Coal is mostly used for making coke. Superintendent, M. A. Preston; mine-boss, Patrick Slavin.

Millwood.

This mine is opened by a shaft, and operated by the Millwood Coal Company. Superintendent, E. B. Kimmel. The ventilation here is produced by a fan twelve feet in diameter, and upon examination, found that

it gave very good results; the drainage is also good. The mine is situated about two miles from Millwood station, and the coal is brought to this point upon a narrow-gauge road by a small locomotive in cars holding four tons each. Mine-boss, J. Morrison.

Isabella.

This mine is operated by the Isabella Furnace Company, and located at Coketon. The coal is hauled for a distance of two thousand feet by a stationary engine and tail rope. They were extending their rope six hundred feet farther into the mine upon my last examination. The ventilation and drainage of the mine are good. The system of mining here is partly block and partly single-heading. Superintendent, William Crist; mine-boss, Morris J. Lewis.

INDIANA COUNTY MINE.

Foster.

This mine I found to be in good condition; is situated about two miles from the railroad, to which place the coal is brought in the mine-wagons by a small locomotive. This mine has been very well opened with a double drift, distance apart twenty-five feet, one of which is used to take in the entry-wagons, and the other to bring out the loaded ones. The system of mining is mostly double-heading; they have a couple of single headings working. Superintendent, D. S. Robison; mine-boss, J. H. Johnson. Is operated by the Saltsburg Coal Company.

CAMBRIA COUNTY MINES.

Rolling-Mill

Is located at Johnstown, and operated by the Cambria Iron Company, and employs over two hundred men. This mine is well ventilated by a fan. The coal is hauled for a distance of one mile by a locomotive. The air is forced into the work direct from the fan to the miners, in three splits, after which comes together at the turnout in the mine, where the locomotive gets its trip of coal, and is then driven in one volume through the engine-road. Upon my last examination, there was a volume of forty-eight cubic feet per minute going through this road. They have also a traveling-road here for the men to walk in and out upon, in place of going upon the engine-road, which has recently been retimbered and drained, so as to make it, if possible, absolutely safe and comfortable for the men when traveling upon it. Superintendent, Thomas Fulton; mine-boss, Andrew L. Nelson.

Haws'

Is also located at Johnstown, and operated by A. J. Haws. The coal is reached by a shaft, and the mine ventilated by a furnace. Upon my ex-

amination I found the ventilation and drainage to be of the very best, in fact all that could be required. Superintendent, H. Y. Haws.

Gautier

Is operated by Cambria Iron Company. This mine, upon my first examination, I found not having the openings required by the new mine law, and the ventilation a little defective; but upon my second visit, I found the necessary openings, and the ventilation much better. They are going to put up a new furnace for ventilation. Mine-boss, D. F. Jones.

Cushon.

This mine is also operated by Cambria Iron Company, and ventilated by furnace. Upon examination, found the drainage good and ventilation fair. The mine-boss informs me that the ventilation is much better in the mine now than when I examined it, as they have made some repairs in the air-ways, and closed up the air-stopping which was leaking. Mine-boss, W. J. Gilmore.

Conemaugh

Is located east of Johnstown two miles, and operated by the Cambria Iron Company. This is a small mine, employing about twenty men. It is ventilated by a furnace, and upon examination, found the ventilation and drainage reasonably good. I examined it twice. Mine-boss, Frank Spotts.

Argyle.

This mine is located at South Fork, and operated by Huff & Coulter. I examined but once, and found it then in very good condition. They have four headings working at present, three butt and the main. They have changed their system of mining from that of single-heading to double-heading. Those in charge seem to have a desire to live strictly up to the mining law. Superintendent, J. P. Willson; mine-boss, John Pratt.

Aurora

Is operated by Luke & Heist, and located at South Fork. Mine is in good condition. They employ about twelve miners. System of mining is single-heading. Mine-boss, Frederick Crouse.

Euclid.

This is a small mine, employing about twenty men; is operated by the Euclid Coal Company. Upon my first examination, the ventilation was a little defective, but it is now good, and is produced by furnace. Mine-boss, Wendle Croyle.

Stineman

Is operated by J. C. Stineman, and located at South Fork. I examined this mine twice, and found it in very good condition. They have put up a

new furnace for ventilation, which does the work very satisfactorily. Mine is worked by double headings. Superintendent, J. C. Stineman; mine-boss, William Watkins.

South.

The coal is hauled from this mine for a distance of one thousand eight hundred feet by a stationary engine and tail rope, which system of hauling has given Mr. G. B. Stineman, the operator, great satisfaction. This mine dips about eighteen inches to the one hundred feet into the hill. I found the ventilation a little defective at the face of the works, and notified the superintendent of the defect and the cause of the same, and gave him the remedy, which was applied immediately. Ventilation is now good. Mine-boss, J. Rosebaugh.

Webster, No. 3.

This mine is opened along the old Portage railroad, about half-way between North Fork and Summerhill, and operated by John C. Scott & Sons. Superintendent, Phillip Hartman. They employ one hundred and fifty men. Ventilation is produced by a furnace, and is reasonably good; drainage not so good. They are about putting up machinery to do their hauling along the main heading of the mine, which is over half a mile in length; it will be the tail-rope system of haulage. They are also talking of putting up a fan for ventilation.

Martindale

Is operated by J. C. Martin, and located at Portage. This is a new mine slope opening. Upon examination, I found the ventilation rather weak at the face of mine, as they have yet nothing but natural ventilation. They have a shaft by which they intend ventilating the mine, either by fan or furnace. The system of mining is single-heading. Superintendent, J. C. Martin; mine-boss, Harry Mears.

Standard

Is located at Portage, and operated by Neven & Co. Upon my visit to this mine, I found it not in operation, but I understand now that it is employing about forty men.

Souman, No. 1.

This mine is located at Ben's creek, and operated by W. H. Piper & Co. Superintendent, John Leahy; mine-boss, Daniel Leahy. The ventilation when I examined the mine, was a little defective, it being then produced by natural means. I expect, upon my next examination to find a furnace, as Mr. Leahy said he would have one put up to ventilate with.

Smith.

This mine is about worked out, and I did not examine it.

GALLITZEN SLOPES, CAMBRIA COUNTY, PA.

Sonman Shaft

Has been idle; did not go in to examine, as they are only working the pumps to keep the water out.

Mentzer

Is located on Ben's creek, and operated by E. W. Mentzer. This mine is about worked out; they are working on the stumps and pillars of the mine. I examined the mine, and found the ventilation rather insufficient. Mr. Mentzer has opened a mine farther up the creek, which he intends ventilating by a furnace. Mine-boss, John Leap.

Dysert, No. 2,

Is operated by D. Laughman, and located at Ben's creek. This is another mine which has only natural ventilation, and is connected with the Mentzer mine. In my examination I found the ventilation inadequate to keep the mine in good sanitary condition. A furnace at the Mentzer mine, as I told Mr. Thomas Leahy, the mine-boss, would give them the best of ventilation; they promised to have one put up right away.

Dysert, No. 1,

Is operated by Caron Leahy, and located near Lilly. This mine employs but nine men. The ventilation of this mine was reasonably good the day I examined it, but the drainage bad; they were about to cut off that part that had bad drainage by a new opening. Mine-boss, Pat Leahy.

Sonman, No. 2,

Is operated by W. H. Piper & Co., and located at Lilly. Superintendent, John Leahy. I found this mine to have very good ventilation, and the drainage reasonably good, but they had not the openings required by the law. I notified the superintendent of this deficiency, and he immediately started to make the necessary change. Mine-boss, John Farrier.

Standard

Is located at Lilly, and operated by the Standard Coal Company. I found the ventilation of the mine reasonably good upon the day I examined, but being natural ventilation, I advised the mine-boss to endeavor to have a furnace put in, as there is no reliance upon his present mode of ventilation whatever. System of mining is single-heading. Superintendent, C. A. Hughes; mine-boss, Edward Edwards.

Griffith.

This mine is located at Johnstown. Ventilation is produced by furnace. Mine is in good condition as to ventilation and drainage. Mine-boss, John F. Griffith.

Gallitzin

Is operated by Taylor & McCoy, and located at Gallitzin. Is a shaft

opening, depth, one hundred and twenty feet; size, 26′×11′, and divided in the following manner: 5′×11′ is used for up-cast, 15′×11′ is used for hoisting, and the remainder is utilized for stairway and steam-pipes, to carry steam to the pumps at bottom of shaft. The power used for ventilating is the exhaust steam from the pumps at the bottom of the shaft, which I found, upon examination, to be fully adequate to the work at that time, but since my examination they have increased the capacity of the mine very much, and I spoke to the mine boss of the necessity of increasing their ventilating power, to correspond to the increase of the mine. He informed me that they intend putting up a fan immediately. Those in charge have a desire, from what I can learn, to live strictly up to the requirements of the law. They have also an escapement shaft, which is supplied with stairs, so that the miners could escape from the mine in case of accident to hoisting shaft. They employ two hundred and twenty-five men and boys, and hoist over seven hundred tons of coal a day at present. Superintendent, David McCoy; mine-boss, William Rodda.

Monroe Slope.

This is comparatively a new mine, operated by the Gallitzin Coal and Coke Company, and promises soon to be one of the largest mines in the district. The coal is reached and hauled through a slope three hundred and seventy-five feet deep. The mine is drained by a drift opening eight hundred feet in length. Those in charge are now putting in another slope, 14′×12′, by which to ventilate the mine. A Murphy fan, ten feet in diameter, will be erected at mouth of this slope. Four feet of this opening will be partitioned off for a traveling-road to and from the mine, leaving an area of one hundred and twenty feet for the air to travel through. The system of mining is double-heading, and, upon examination, I found it to be in very good condition. Inclosed with my report will be found photographs of this mine, kindly furnished by Mr. James Mitchell, general manager of the mines. Superintendent of mine, T. Monroe; mine-boss, James Smith.

Delaney

Is located about two miles from Kittanning Point, and operated by the Altoona Coal and Coke Company. This is a slope and tunnel as well, as it runs through the hill to another valley, through which they bring lumber and coal, for which purpose they have put up a very fine pair of engines to do the work. Ventilation and drainage are good. Superintendent, Andrew Patrick; mine-boss, John Watkins.

BLAIR COUNTY MINES.

Bennington

Is located at Bennington, and operated by the Blair Iron and Coal Company. Superintendent, Martin Meagher. Upon examination of the mine, I found it to be in very good condition as to ventilation, but the drainage

VIEW OF GALLITZEN SLOPES, CAMBRIA COUNTY, PA.

was not good. The seam of the coal worked here is very small, being but two feet two inches in height; it is, therefore, very difficult to ventilate and drain. Ventilation is produced by a fan six feet in diameter. They keep an extra engine in the fan-house, so that anything occurring to one, the other can be attached to the fan in ten minutes' time, thereby keeping up their ventilating current. This extra engine has but recently been put in. Mine-boss, J. Bradley.

Porter Shaft

Is operated by Dennison & Porter. This mine is connected with the Bennington mine, and ventilated by their fan. Upon examination, I found it in reasonably good condition, but one of the headings was a little too far ahead of the air, but they were expecting every day to make a connection with an air-way which would bring the air up to the face of the work. Superintendent, C. H. Porter; mine-boss, John Leonard.

Juniata.

I did not get in to examine this mine, as they were idle each time I was there to examine it. They employ about twenty men, but do not run very regularly. Superintendent, J. Gibbons; mine-boss, James Morran.

Glen White

Is operated by the Glen White Coal and Lumber Company, and located at Glen White, two miles from the Horse Shoe Bend, on the Pennsylvania railroad. This is a new mine but lately opened, and, upon examination, I found the ventilation very defective. They had a shaft put down to the coal, and were driving then to strike the bottom of it, through which they intended to ventilate the mine. The superintendent, Mr. David McCoy, wrote to me soon after my visit, stating that they had reached the shaft, and that the ventilation was all right again. A slope is being put down to a basin that is in the coal, through which, when completed, they will bring out all their coal. Mine-boss, Valentine Eichenlaub.

Horse Shoe.

This mine, owned and operated by the Altoona Coal and Coke Company, is situated about two miles from Kittanning Point, on the Pennsylvania railroad. The ventilation is produced by a furnace, and when examined was very good, well up to the face of the workings throughout the mine. The seam of coal is very small, two feet two inches, but of superior quality for making coke, which it is used for. Superintendent of mine, Andrew Patrick; mine-boss, Charles Reilly.

Great Bend

Is located at Mountaindale, on the Bell Gap railroad, and operated by the Great Bend Coal Company. I examined this mine twice. Upon my first visit, I found the ventilation rather defective, and the mine not having the

openings required by the new mine law. Upon my second visit, the ventilation was much better, and the mine has now the necessary openings required, so that it is now in good condition. System of mining is double-heading. Superintendent, John E. Bell; mine-boss, John Cann.

Eldorado

Is also located at Mountaindale. This is a small mine, employing about fifteen to eighteen men. Upon examination, I found the ventilation was not very good, and ordered the mine-boss to fix up his fire-place, (as it could not be called a furnace,) so as to enable them to put more air into the mine for the men. Superintendent and mine-boss, J. E. Palmer.

Smittle.

This mine is another small mine, but upon examination, I found it to be in very good condition as to its ventilation and drainage. Is operated by J. Smittle & Co., and located at Mountaindale. Mine-boss, Joseph Smittle.

CLEARFIELD COUNTY MINES.

Irvona.

This mine is located near the terminus of the Bell Gap railroad, at Coalport, and operated by the Irvona Coal and Coke Company. Superintentendent, W. J. Nichols. Upon examination of the mine, I found it to have very good ventilation, but bad drainage. This mine has given those in charge a great deal of trouble, by the coal dipping in all directions. They were driving a water-course from a low point when I visited last to the outside, which would drain the mine. They are opening another mine below this one about a half mile from which they propose shipping their coal. The coal from the old mine is mostly used for coking. They have eighty coke-ovens. Mine-boss, John McNulty.

Spartan.

Operated by Samuel Haggerty, and located at Coalport. Upon my first examination of this mine, the ventilation and drainage were poor, and had not the openings that are required for safety; but upon my second visit I found the ventilation somewhat better, but not yet what it should be. They have a fire place, but no furnace. I notified them that they would have to put up a furnace before they could ventilate their mine properly. The mine has the necessary opening at present. Superintendent and mine-boss, William Wright.

Blaine Run

Was operated by J. Elliott, and located at Coalport. Upon my first trip to that region, and upon examination of the mine, I found the ventilation very poor, and notified Mr. Elliott of the defects in the ventilation of his mine, and to remedy it he would have to put up a furnace which, he prom-

GALLITZEN SLOPES, CAMBRIA COUNTY, PA.

ised he would do if he kept the mine running, as he was then talking of shutting down, which he did very soon after, and I learn it is still idle. Mine-boss, William Williams.

BEDFORD COUNTY MINES.

Cambria

Is located on Sandy Run, about two miles from Hopewell, and operated by Langdon & Co. Upon examination of this mine, I found ventilation and drainage poor. It is about worked out; they are drawing stumps and pillars there, and it will soon be closed. Mine boss, R. Dickison.

Cherington.

This mine is located at the same place, and operated by the same firm as the Cambria mine. It is a new mine opened during the year, and upon examination, I found it to be in very good condition. They have a shaft put down, where they propose putting in a furnace to ventilate the work with. Superintendent, John Langdon; mine-boss, Robert Dickison.

Brown

Is located at Defiance, and operated by Sweet & Brown. Upon my first examination of this mine, I found the ventilation to be rather defective in the face of the works, and that they had not the openings that the new mining law requires for the safety of the men employed in the mine. I notified those in charge of the mine of the facts, when they promised to have them made as soon as they could, which they did, so that upon my second visit, I found a new outlet, and the ventilation very much improved. They have informed me by letter that they are now putting a large furnace in place of the old furnace, which was too small, to increase their ventilation, as they propose increasing the capacity of the mine. Superintendent, William Sweet; mine-boss, William Powell.

Everett.

This mine is located on Long's Run, about two miles from Hopewell, and operated by the Everett Iron and Coal Company. Superintendent, J. Cunningham. This mine has three openings, two drifts and the air-shaft, and, upon examination, I found the mine in reasonably good condition. They coke the coal from this mine for the use of the Everett Blast Furnace. Mr. Cunningham informs me that the mine is shut down for the present. Mine-boss, John Horton.

HUNTINGDON COUNTY MINES.

Robertsdale Mines

Are operated by the Rockhill Coal and Iron Company, and located at the terminus of the East Broad Top railroad. They are three in number. I visited these mines twice, and each time they were idle, but I examined them and found the ventilation to be kept well up to the face of the workings, and reasonably good drainage throughout. Those in charge keep a

competent man to look after the doors, air-stoppings, &c., that are used in the mines for conducting the air in its proper course through the workings. The mines are ventilated by two furnaces, one $6' \times 8'$, and the other $5' \times 7'$. Superintendent, A. W. Sims; mine-boss, D. C. Patrick.

Benedict

Is operated by Reed Brothers, and located at Dudley. This mine was not working upon my first visit to this region; therefore, did not examine but once; found then a very good volume of air, but it was not reaching the face of the mine for the want of a door. I ordered the putting up of this door, which was done, and the air was then sent on its proper course through the mine. Ventilation is natural, therefore not reliable; they should have a furnace. Mine-boss, Wilmer Reed.

FATAL ACCIDENTS.

There has been but one fatal accident in the district since my appointment, so I can only describe this one. It occurred at the Monastery mine, December 31. The name of the young man was Frank Hill, a miner, who undertook to haul a car out of another miner's room, after being warned by the driver not to do so, and while coming out of the room, his lamp fell from his head, and when jumping off the front of the car to pick up his lamp, he was caught between the car and a prop and squeezed to death. He was eighteen years of age, and kept his widowed mother.

IMPROVEMENTS DURING THE YEAR.

Monastery mine have put in new timber along their slope, and a new heavy steel rail track.

Latrobe Coal Works have put down a new shaft, $7' \times 8'$, to increase their ventilation and pumping facilities, put in two pumps, a Niagara and Cameron, and built forty new coke ovens.

Cambria Iron Company have improved their Gautier mine by making a new outlet, and also their Mill coal mine, by retimbering and draining off their traveling road.

Webster, No. 3, have made a new opening to their mine, and built thirteen new houses for their miners, and built a reservoir on the hill, from which pure spring water is furnished for the use of the houses.

W. H. Piper & Co. have made a new opening to their Sonman mine, No. 2, to comply with the law.

Standard mine have also made a new opening to their mine for the same purpose.

McCoy & Taylor have built thirty-two new coke ovens and a new reservoir, into which they force the water from the mine for the use of the ovens.

Gallitzin Coal and Coke Company have built a new coke crusher at a cost of one thousand dollars, and seventy new coke ovens, and are now putting down a new slope $14' \times 12'$.

Glen White Coal and Coke Company have put down a new air shaft, and are now putting down a new slope to hoist coal.

J. C. Martin has completed his slope during the year, and put down a shaft for airing the mine.

Altoona Coal and Coke Company have put up twenty-five new coke ovens, and put in a new siding six hundred feet in length.

Irvona Coal and Coke Company have made a new tipple at a cost of one thousand dollars, and are opening up a new mine.

Samuel Haggerty has made a new opening to his mine.

Bradley & Co. have opened up a new mine at Bennington, and built about twenty coke ovens.

Blair Coal and Iron Company have put in an extra engine in fan-house, for benefit of ventilation.

Sweet & Brown have made a new outlet to their mine.

Reed & Brothers are about completing a new air-shaft to increase ventilation.

GENERAL RULES.

Duties of mining-boss subject to the control and supervision of the superintendent or general mining engineer. The whole operative details shall be under the care and charge of the mine-boss. He shall see that the workmen of every class in their several departments discharge their duties, and shall receive and attend to all reports made to him as to the state of repair of air-courses, machinery, trap-doors, roads, and working-places. He shall cause remedies to be provided where needed, and shall see the general rules faithfully and vigorously enforced. He shall have under his immediate and special charge the shaft, slides, pumps, and relative fittings, all of which he shall keep safe and efficient. He shall attend to the ventilation and to the observance of the other general rules, so far as they, from their nature, can be observed by himself or have failed to be observed by others under his charge. He shall see that a plentiful supply of timber for props and other purposes required by the workmen to carry on their operations with safety to themselves is always ready, and shall cause the same to be cut in proper lengths and laid down in their proper places.

Furnacemen shall be subject to the control of the mine-boss, and act under his directions.

Roadmen shall be subject to the control of the mine-boss. They shall daily make careful inspections of the roadways through the mine, and shall keep the same free from all obstructions, and of the fixed height and width necessary for proper passage and for ventilation. They shall repair and remedy all damages and defects in the roads of the mine, and shall keep in proper condition all trap doors, and see that the regulations are enforced in keeping the same closed, and, wherever practicable, shall make and keep such doors self-acting; they shall make and place such doors wherever the progress of the operations shall make them necessary in the mine. The

roadmen shall also attend to falls and defects in the main roadways, and shall clear or remedy the same; it shall be their special duty to stop the passage of men or materials through or under defective roads, roofs, or places, until the necessary repairs shall have been executed. In removing falls from the roofs on roads and air-courses, they are enjoined to proceed with the greatest caution, both for their own safety and that of others, and for the execution of their duties. They shall examine the roof and sides of every traveling road once a day to see that they are safe.

Miners and other workmen shall be subject to the control of mine-boss or superintendent; they shall also be subject to the control or direction of the roadmen for the purpose of preventing any infringement, or of causing them to comply with any of the provisions of these rules. If, while at work or any other time, any miner or workman shall discover any obstruction in the ventilation, or stagnation or impurity in the air of the mine, or the existence of any defect in the walls or roof of the mine, or any part thereof, he shall be bound to give instant information of the same to the mine-boss, superintendent, or roadman, so that they may be remedied, and danger thereby averted.

Miners are expressly forbidden to go into or improperly near any place throughout the mine where danger is known or suspected to exist. Whether the operations shall be conducted by the long, wall, pillar, and stall, or a modification of the same, a sufficient number of props of suitable size being supplied at their working-places, the same shall be set up by the miners in their working-places where the roofs and sides require to be secured by them; but besides being bound to prop and secure according to their own skill and experience, miners are required to place props within their working places in such manner as the mine-boss or roadmen may deem necessary for the workmen and the mine.

When employed to return and remove pillars, miners shall be bound to prop and secure the roof around their place before starting to remove the pillar. If, from accident or any other cause, miners are at any time unable to find a sufficient supply of props at the place appointed, they are expressly forbidden to remain in their working-places. If, in proceeding to their working-places or traveling along any formed road, the maintenance of which, under these rules, devolves on the owner, agent, or manager, miners, drivers, or other workmen who shall meet with or see any falls from the roof, or shall observe any dangerous places in the roofs or sides, shall not pass the same, but shall instantly report the occurrence to the proper person having the maintenance of such places under his charge; and miners, drivers, or any other workmen shall not pass such dangerous places until the same have been made secure, which it shall be imperative on the superintendent, mine-boss, or other persons having charge forthwith to do.

As a matter of common safety, miners, drivers, or other workmen who shall know of any damage to road, roof, or air-course, permanent or tem-

porary brattice, or in shaft buildings, or other appliances, or work devised for making, maintaining, and promoting the effective ventilation of the mine, shall be bound instantly to report the same to the proper persons in charge. In like manner, every miner, driver, or any other workmen who shall observe or come to know of any defect or flaw in the cage, ropes, or chains, or in any part of the machinery or gearing used in or about the mine, whereby the efficiency thereof may be impaired, shall be bound to report the same to the proper person in charge.

Any miner employing a boy or male young person shall be bound to see that such boy or young person leaves the mine when his shift is done. Any miners or workmen of any kind who shall have occasion to pass through any door shall thereupon closely shut the same, and shall on no account leave it open. All workmen are prohibited from entering or remaining in any place in the mine where not absolutely required by duty to be at the time.

All workmen are expressly forbidden to throw into, deposit, or leave coals or other minerals, wood, stone, or rubbish of any kind in any air-course or road so as to interfere with or hinder the air passing into and through the mine. Workmen ascending or descending the shaft shall not be allowed to leave the cage before it has rested at the landing-place.

Where gunpowder is used for blasting, it shall be carried in tin cans, of not more than eight pounds each, into the workings.

No workman shall be permitted to enter the mine while in a state of intoxication.

N. B.—All persons employed in the mines are especially requested to peruse these rules, and nothing in these rules shall be construed to prevent any arrangement between miners and their employers as to payment for work done in ridding "falls" in working-places.

TABLE I.—*Showing location of collieries in the Sixth Bituminous Mine District.*

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post-Office Address.
Argyle,	Huff & Coulter,	Cambria,	J. P. Willson,	Sou'h Fork, Cambria county.
Aurora,	Luke & Heist,	do.	D. W. Luke,	do. do.
Benedict,	Reed & Bros.,	Huntingdon,	William Reed,	Dudley, Huntingdon county.
Blaine Run,	Blaine Run Coal Company,	Clearfield,	J. M. Elliott,	Coalport, Clearfield county.
Bennington,	Blair Iron and Coal Company,	Blair,	Martin Meagher,	Gallitziu, Blair county.
Brown,	Brown & Sweet,	Bedford,	William Sweet,	Saxton, Bedford county.
Ben's Creek,	H. S. Smith & Co.,	Cambria,	H. S. Smith,	Altoona, Blair county.
Carbon, No. 1,	E. P. Jenkins & Co.,	Huntingdon,	T. A. Jones,	Broad Top City, Huntingdon county.
Cushon,	Cambria Iron Company,	Cambria,	Thomas Fulton,	Johnstown, Cambria county.
Conemaugh,	do. do.	do.	do.	do. do.
Cambria,	Langdon & Co ,	Bedford,	John Langdon,	Hopewell, Bedford county.
Dysart, No. 1,	Caron Leahy,	Cambria,	Caron Leahy,	Hemlock P. O., Cambria county.
Dysart, No. 2,	D. Laughman,	do.	D. Laughman,	Altoona, Blair county.
Delany,	Altoona Coal and Coke Company,	Blair,	Audrew Patrick,	do. do.
Everett,	Everett Coal and Iron Company,	Bedford,	J. Cunningham,	Kearney, Bedford county.
Euclid,	Euclid Coal Company,	Cambria,	D. W. Luke,	South Fork, Cambria county.
Eldorado,	Eldorado Coal Company,	do.	J. E. Palmer,	Mountaindale, Cambria county.
Foster,	Saltsburg Coal Company,	Indiana,	D. S. Robinson,	Saltsburg, Indiana county.
Fisher,	Reed Bros.,	Huntingdon,	John B. Reed,	Dudley, Huntingdon county.
Gautier,	Cambria Iron Company,	Cambria,	Thomas Fulton,	Johnstown, Cambria county.
Griffith's,	Fen & Coover,	do.	John F. Griffith,	do. do.
Gallitzin Shaft,	Taylor & McCoy,	do.	David McCoy,	Gallitzin, Cambria county.
Great Bend,	Great Bend Coal Company,	do.	John E. Bell,	Bellwood, Blair county.
Glen White,	Glen White Coal Company,	Blair,	David McCoy,	Glen White, Blair county.
Haws' Shaft,	A. J. Haws,	Cambria,	H. Y. Haws,	Johnstown, Cambria county.
Horse Shoe,		do.	Audrew Patrick,	Altoona, Blair county.
Isabella,	Isabella Furnace Company,	Westmoreland,	William Crist,	Coketon, Westmoreland county.
Irvona,	Irvona Coal and Coke Company,	Clearfield,	W. J. Nichols,	Pottstown, Montgomery county.
Loyalhanna,	Loyalhanna Coal and Coke Company,	Westmoreland,	William Dovey,	Latrobe, Westmoreland county.
Latrobe Coal Works,	Latrobe Coal and Coke Company,	do.	D. W. Jones,	do. do.
Millwood Shaft,	Millwood Coal Company,	do.	E. B. Kimmel,	Millwood, Westmoreland county.
Monastery,	H. C. Frick & Co.,	do.	George Ramsey,	Latrobe, Westmoreland county.
M. Saxmau,	M. Saxman & Co.,	do.	F. Kurnan,	do. do.
Martindale,	J. C. Martin & Co.,	Cambria,	J. C. Martin,	Portage, Cambria county.
Monroe,	Gallitzin Coal and Coke Company,	do.	James Mitchell,	Tyrone, Blair county.
Mentzer,	E. W. Mentzer,	do.	E. W. Mentzer,	Hollidaysburg, Blair county.
Minersville,	R. H. Powell & Son,	Huntingdon,	Edward McHugh,	Saxtou, Bedford county.
Maher,	Roda Maher,	Bedford,	Roda Maher,	Six Mile Run, Bedford county.
Mount Equity,	Kimbler & Co.,	do.	William Kelly,	Riddlesburg, Bedford county.
Ocean,	William Sweet,	do.	William Sweet,	Saxton, Bedford county.
Porter,	Dennison & Porter,	Blair,	C. H. Porter,	Hollidaysburg, Blair county.
Rolling Mill Mine,	Cambria Iron Company,	Cambria,	Thomas Fulton,	Johnstown, Cambria county.
Robertsdale, No. 1,	Rockhill Iron and Coal Company,	Huntingdon,	A. W. Sims,	Orbisonia, Huntingdou county.
Robertsdale, No. 2,	do. do.	do.	do.	do. do.

Ridgeview,	D. C. George & Co.,	Westmoreland,	D. C. George,	Latrobe, Westmoreland county.
Smittel,	Smittle & Co.,	Cambria,	Joseph Smittle,	Mountaindale, Cambria county.
St. Clair,	St. Clair Coal and Coke Company,	do.	M. A. Preston,	Latrobe, Westmoreland county.
Spartan,	Samuel Haggerty,	Clearfield,	William Wright,	Coalport, Clearfield county.
Stineman,	J. C. Stineman,	Cambria,	J. C. Stineman,	South Fork, Cambria county.
South Fork,	G. B. Stineman,	do.	G. B. Stineman,	do.
Summerhill, No. 1,	C. A. Diamond,	do.	Stephen Diamond,	Summerhill, Cambria county.
Summerhill, No. 2,	do.	do.	do.	do.
Summerhill, No. 3,	do.	do.	do.	do.
Sonman, No. 1,	W. H. Piper & Co.,	do.	John Leahy,	Hemlock P. O., Cambria county.
Sonman, No. 2,	do.	do.	do.	do.
Sonman Shaft,	Whitehead & Co.,	do.	John Whitehead,	Huntingdon, Huntingdon county.
Standard,	Standard Coal Company,	do.	C. A. Hughes,	Altoona, Blair county.
Standard,	Nevin & Co.,	do.	P. E. Woomeldooffe,	Phillipsburg, Centre county.
Smith,	Smith & Co.,	Indiana,	W. Smith,	Black Lick, Indiana county.
Turner,	J. M. Turner,	do.	J. M. Turner,	Blairsville, Indiana county.
Woodvale,	Johnstown Manufacturing Company,	Cambria,	Samuel Young,	Johnstown, Cambria county.
Webster, No. 3,	John C. Scott & Sons,	do.	Philip Hartman,	Summerhill, Cambria county.

TABLE II.—*Showing character of coal, production, number of employés, days employed, casualties, &c., in the Sixth Bituminous Mine District.*

COLLIERIES.	Operators.	Character of coal. (Anthracite or Semi-Anthracite, Bituminous or Semi-Bituminous.)	Drift, slope, or shaft.	Number of inside workmen.	Number of outside workmen.	Total employees.	Number of days worked inside.	Number of days worked outside.	Number of horses and mules.	PRODUCTION.		CASUALTIES.				
										Number of tons produced.	Number of tons shipped.	Killed inside.	Killed outside.	Injured inside.	Injured outside.	Total killed and injured.
Argyle,	Huff & Coulter,	Semi-bit's,	Drift,	74	10	84	313		12	98,274				1		
Blaine Run,	J. M. Elliott,	Bituminous,	do.	30	2	32	113		3	10,276						
Ben's Creek,	S. H. Smith & Co.,	Semi-bit's,	do.	13	2	15	170		3	10,000						
Beuningtон Slope,	Blair Iron and Coal Company,	do.	Slope,	137	11	148	306		30	92,903		1				
Benedict,	Reed Bros.,	do.	Drift,	30	2	32	200		7	30,000						
Brown,	William Sweet & Brown,	do.	do.	70	4	74	190		6	37,000						
Carbon,	E. P. Jenkins,	do.	do.	44	3	47	228		3	18,688						
Cushon,	Cambria Iron Company,	do.	do.	80	13	93	290		5	56,324						
Conemaugh,	do. do.,	do.	do.	22	4	26	300		3	19,728						
Cambria,	Langdon & Co.,	do.	do.	43	5	48	153		5	14,334		1				
Dysart, No. 1,	Caron Leahy,	do.	do.	10	3	13	200		2	5,300						
Dysart, No. 2,	D. Laughman,	do.	do.	80	15	95	200		14	60,000						
Delany,	Altoona Coal and Coke Company,	Bituminous,	Slope,	81	12	93	262		12	57,729						
Everett,	Everett Coal and Iron Company,	Semi-bit's,	Drift,	83	45	128	236		9	66,415						
Euclid,	Euclid Coal Company,	do.	do.	18	2	20	262		3	16,201						
Foster,	Saltsburg Coal Company,	Bituminous,	do.	97	15	112	299		4	72,000						
Fisher,	Reed Bros.,	Semi-bit's,	do.	30	4	34	200		4	30,000						
Gautier,	Cambria Iron Company,	do.	do.	36	4	40	288		4	22,441				1		
Griffiths,	Fen & Coover,	do.	do.	12		12	300		2	10,000						
Gallitzin Shaft,	McCoy & Taylor,	Bituminous,	Shaft,	225	35	260	299		12	153,323						
Great Bend,	Great Bend Coal Company,	do.	Drift,	75	6	81	250		5	62,175						
Glen White,	Glen White Coal Company,	do.	Slope,	70	10	80	200		9	30,000				1	1	
Horse Shoe,	Altoona Coal and Coke Company,	do.	Drift,													
Haws' Shaft,	A. J. Haws,	Semi-bit's,	Shaft,	10	3	13	310			10,524						
Isabella,	Isabella Furnace Company,	Bituminous,	Slope,	73	13	86	275		6	88,000						
Irvona,	Irvona Coal Company,	do.	Drift,	50	50	100	250		7	70,000						
Juniata,	Juniata Coal Company,	Semi-bit's,	do.													
Loyalhanna,	Loyalhanna Coal and Coke Company,	Bituminous,	Shaft,													
Latrobe Coal Works,	Latrobe Coal Company,	do.	Slope,	50	16	66	288		7	50,787				1		
Millwood,	Millwood Coal Company,	do.	Shaft,	60	11	71	180		7	33,302						
Monastery,	H. C. Frick & Co.,	do.	Slope,	48	31	79	197		10	35,501		1				
M. Saxman,	M. Saxman & Co.,	do.	Shaft,	59	22	81	300		7	71,971						
Martindale,	J. C. Martin & Co.,	Semi-bit's,	Slope,	66	6	72	260		3	49,000				2		
Monroe Slope,	Gallitzin Coal Company,	do.	do.	33	28	111	267		8	61,074				1		

Mentzer,	E. W. Mentzer,	do.	Drift,	33	2	35	170	. . .	8	15,197	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Minersville,	R. H. Powell & Sons,	do.	do.	70	4	74	305	. . .	10	47,796	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Maher,	Roda Maher,	do.	do.	12	2	14	180	. . .	2	6,000	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Ocean,	William Sweet,	do.	do.	28	4	32	280	. . .	3	20,000	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Porter,	Dennison, Porter & Co.,	do.	Shaft,	60	38	98	228	. . .	18	31,982	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Rolling Mill,	Cambria Iron Company,	Bituminous,	Drift,	260	8	268	312	. . .	23	161,849	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1	. .	1	. .	. . .	. . .	. . .	. . .	. . .
Robertsdale, No. 1,	Rockhill Iron and Coal Company,	Semi-bit's,	Shaft,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1	. .	. . .	. . .	. . .	. . .	. . .
Robertsdale, No. 2,	do. do.	do.	Drift,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Ridgeview,	D. C. George & Co.,	Bituminous,	do.	35	22	57	293	. . .	8	38,263	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Smith,	Smith & Co.,	do.	do.	10	2	12	275	. . .	2	9,929	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
St. Clair,	M. Preston & Co.,	do.	do.	75	20	95	300	. . .	7	65,000	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Spartan,	Samuel Haggerty,	do.	do.	35	5	40	240	. . .	5	38,000	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Smittle,	Smittle & Co.,	do.	do.	21	3	24	214	. . .	1	12,800	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Stineman,	J. C. Stineman,	Semi-bit's,	do.	50	10	60	288	. . .	6	51,510	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
South Fork,	George B. Stineman,	do.	do.	29	2	31	202	. . .	5	22,721	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sonman, No. 1,	W. H. Piper & Co.,	do.	do.	70	30	100	300	. . .	8	38,500	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sonman, No. 2,	do.	do.	do.	73	52	125	300	. . .	9	57,000	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Standard,	Standard Coal Company,	do.	do.	48	3	51	250	. . .	5	29,750	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Turner,	J. M. Turner,	Bituminous,	do.	6	2	8	300	. . .	1	10,750	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Webster, No. 3,	John C. Scott & Son,	Semi-bit's,	do.	123	6	129	277	. . .	10	92,986	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Woodvale,	Johnstown Manufacturing Company,	do.	do.	7	2	9	305	. . .	2	6,695	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Total,	. . . . .	. . . . .	. . . . .	2,901	604	3,508	12,699	. . .	315	2,203,028	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	4	. .	9	2	15				

TABLE III.—*A statement showing the method of ventilation, amount of air discharged, number of openings and headings, and size of inlets and outlets in the respective collieries of the Sixth Bituminous Mine District.*

NAME OF COLLIERY.	How ventilated.	Diameter of fan in feet.	Size of furnace.	Amount of air discharged per minute.	Number of openings.	Number of headings.	Inlet—size of—square feet.	Outlet—size of—square feet.
Argyle,	Furnace,		3′ 0″ x 5′	10,000	2	5	53	40
Aurora,	Natural,			3,400	2	2	42	36
Benedict,	Natural,			5,400	2	1	45	32
Blaine Run,	Natural,			3,000	2	2	39	40
Bennington Slope,	Fan,	6		15,400	3	3	45	50
Brown,	Furnace,		4′ x 4′	5,700	3	2	16	45
Ben's Creek,	Natural,			4,200	2	2	50	36
Carbon, No. 1,	Furnace,		5′ x 3′ 0″	4,300	3	2	32	42
Cushon,	Furnace,		6′ 0″ x 7′	12,800	3	2	80	40
Conemaugh,	Furnace,		6′ 6″ x 5′	6,875	2	1	36	25
Cambria,	Furnace,		3′ x 4′ 6″	4,000	2	2	42	45
Cherington,	Natural,			7,980	2	2	42	42
Dysart,	Natural,			4,350	3	3	30	36
Delany,	Natural,			6,750	2	5	50	50
Everett,	Furnace,		6′ x 4′ 0″	9,000	3	3	49	49
Euclid,	Furnace,		6′ 6″ x 3′ 0″	4,000	3	2	45	20
Eldorado,	Furnace,		3′ x 2′	2,700	2	2	60	40
Foster,	Furnace,		7′ x 4′	19,700	3	4	90	42
Fisher,	Furnace,		4′ x 4′	2,200	2	2	42	20
Gautier,	Furnace,		4′ x 3′	6,080	3	2	40	32
Griffith,	Furnace,		6′ x 5′ 0″	7,500	2	1	36	28
Gallitzin Shaft,	Exhaust steam,			19,000	3	7	45	48
Great Bend,	Furnace,		7′ x 4′	17,500	3	2	30	35
Glen White,	Furnace,		4′ x 3′ 6″	5,500	3	3	25	22
Haws' Mine,	Natural,			2,000	2	1	20	22
Haws' Shaft,	Furnace,		6′ x 4′ 6″	10,000	2	1	65	50
Horse Shoe,	Furnace,		5′ x 6′	4,480	2	5	40	40
Isabella,	Exhaust steam,			15,330	4	4	42	42
Irvona,	Furnace,		6′ 6″ x 4′	14,000	3	3	50	42
Juniata,	Furnace,		6′ x 5′		2	2	42	30
Loyalhanna,	Exhaust steam,			21,517	3	11	120	80
Latrobe Coal Works,	Natural,			8,640	5	4	72	49
Millwood Shaft,	Fan,	12		13,500	3	3	50	100
Monastery Slope,	Furnace,		6′ x 5′	22,680	2	5	80	42
M. Saxman,	Natural,			6,720	3	6	42	84
Martindale Slope,	Natural,			4,000	2	3	48	42
Monroe Slope,	Natural,			9,660	2	6	35	66
Mentzer,	Natural,			4,100	4	2	35	35
Minersville,	Furnace,		6′ x 4′ 0″	11,700	3	4	55	35
Maher,	Natural,							
Ocean,	Natural,			3,000	2	2	49	16
Porter Shaft,	Fan,	6		10,500	3	2	45	42
Rolling-Mill Mine,	Fan,	8		48,000	3	3	60	96
Robertsdale, Nos. 2 and 3,	2 furnaces,		6′ x 8′ & 5′ x 7′	33,700	4	6	72	61
Ridgeview,	Natural,			3,000	2	5	98	63
Smittle,	Natural,			3,200	3	2	48	50
St. Clair,	Furnace,		7′ x 4′	20,000	2	6	40	50
Spartan,	Furnace,		6′ x 4′	7,000	3	2	42	45
Schuylkill,								
Stineman,	Furnace,		6′ 0″ x 3′ 0″	16,150	3	4	36	60
South Fork,	Natural,			4,700	2	2	42	40
Summerhill, Nos. 1 and 2,	Not working,							
Sonman Shaft,								
Sonman Mine, No. 1,	Natural,			7,800	3	3	66	35
Standard, No. 1,	Natural,			5,300	3	2	54	36
Standard, No. 2,	Natural,			3,700	2	2	42	40
Sonman Mine, No. 2,	Furnace,		7′ x 4′ 0″	9,600	2	3	42	24
Woodvale,	Furnace,		5′ x 5′	3,200	3	1	42	45
Webster, No. 3,	Furnace,		7′ x 5′ 0″	16,000	3	4	40	40

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

Name of Colliery.	November—1884						December—1884.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Argyle,	278	10,000	278	10,000	300	12,000	278	10,000	200	9,000	300	12,000
Atalanta,	175	7,000	125	5,625	375	6,000	. . .	. . .	. . .	. . .	. . .	. . .
Ashland,	135	6,615	140	4,900	180	6,480	150	7,350	70	3,150	190	6,840
Anchor Mines,	. . .	. . .	. . .	. . .	. . .	. . .	130	4,160	90	3,780	170	4,250
Belleview,	310	13,020	205	11,170	398	23,700	335	14,070	212	11,024	345	20,700
Blaine Run,	110	3,300	87	5,220	232	5,568	122	3,660	57	3,420	231	5,544
Colorado,	260	9,360	180	5,460	270	9,720	270	9,720	170	6,120	280	10,080
Cushon,	100	8,000	48	2,304	220	8,800	100	8,000	85	6,800	220	8,800
Conemaugh,	185	6,660	100	4,200	310	6,510	185	6,660	90	3,780	310	6,510
Columbia,	. . .	. . .	. . .	. . .	. . .	. . .	400	10,000	110	6,600	400	12,000
Cambria,	. . .	. . .	. . .	. . .	. . .	. . .	80	3,800	40	1,760	110	3,300
Derby,	170	6,120	80	4,800	215	6,450	115	3,580	95	3,580	130	3,250
Dixon Mines,	180	8,820	160	7,680	293	14,210	210	10,290	170	8,160	280	13,720
Decatur,	250	9,656	150	10,120	325	14,360	275	10,506	150	10,120	325	14,360
Eureka, No. 2,	380	17,164	190	10,080	340	16,605	380	17,164	180	9,657	310	15,300
Eureka, No. 3,	110	6,132	80	5,556	120	7,448	140	7,350	110	5,840	130	7,968
Eureka, No. 4,	300	13,240	330	11,520	330	13,385	. . .	. . .	. . .	. . .	. . .	. . .
Eureka, No. 5,	490	15,450	315	13,782	410	15,757	. . .	. . .	. . .	. . .	. . .	. . .
Empire,	315	13,230	305	12,200	340	13,600	310	13,200	255	10,200	340	13,600
Excelsior,	388	16,562	208	9,488	600	21,600	315	15,434	. . .	. . .	470	16,980
Elizabeth Mine,	55	3,465	59	3,540	100	3,000	. . .	. . .	. . .	. . .	. . .	. . .
Foster Mine,	360	15,120	. . .	. . .	430	18,060	380	16,340	230	9,660	580	24,940
Glenwood,	131	5,240	96	4,320	129	5,805	134	5,360	99	4,455	132	5,940
Glenn,	55	2,722	45	2,227	55	2,310	50	2,475	40	1,860	50	2,100
Great Bend,	184	5,520	64	2,048	284	7,952	193	5,790	65	2,275	293	8,204
Gallitzin Shaft,	. . .	. . .	. . .	. . .	. . .	. . .	240	11,880	330	16,335	370	16,650
Irvona Mine,	230	9,660	. . .	. . .	250	10,500	240	10,080	120	5,400	280	11,760
Kittanning Mine,	70	3,360	60	3,240	70	3,360	70	6,300	60	3,240	70	6,300
Logan Ridge,	190	6,840	130	6,500	180	6,300	190	9,000	90	3,425	280	9,300
Laurel Run,	150	6,256	200	8,424	200	9,360	200	7,956	260	9,480	270	10,100
Lancashire, No. 1,	100	3,000	80	3,200	170	3,230	260	9,000	200	4,800	320	13,000
Lancashire, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	210	8,650	130	5,860	220	9,050
Lower Gautier,	. . .	. . .	. . .	. . .	. . .	. . .	95	4,655	38	1,902	230	4,600
Mentzer, Ben's Creek,	120	4,320	100	4,000	150	4,500	209	7,500	180	7,200	270	18,100
Moshannon,	240	13,440	220	9,900	225	11,220	235	13,160	215	9,675	250	11,000
Morrisdale,	338	18,928	210	8,400	488	17,568	260	12,480	256	11,520	180	11,520
Monroe Slope,	260	9,100	. . .	. . .	137	9,042	283	9,905	. . .	. . .	150	9,900
Oak Ridge,	360	15,660	290	7,975	500	16,500	190	8,265	230	4,600	310	10,230
Rochester,	385	16,170	180	8,640	1,200	75,600	400	16,800	220	10,566	1,250	78,750
Rolling-Mill Mine,	790	47,400	280	16,800	360	34,560	790	47,400	295	17,700	360	34,560
Sterling, No. 1,	240	18,720	250	10,000	255	24,480	280	21,280	250	10,000	325	24,375
Sterling, No. 2,	180	11,700	175	10,623	250	15,500	135	11,070	85	4,675	240	12,480
Sterling Colliery, No. 4,	185	8,880	135	6,200	430	17,200	. . .	. . .	. . .	. . .	. . .	. . .
South Fork,	90	3,240	70	2,520	80	3,600	90	3,240	60	2,160	130	3,250
Stineman's,	80	2,880	40	2,360	90	3,240	140	5,040	110	3,690	147	5,292
Sonman, No. 1,	110	4,140	65	2,925	195	5,850	120	4,320	85	3,825	225	6,750
Sonman, No. 2,	135	5,610	110	4,950	235	5,640	85	3,570	75	3,375	195	4,680
Standard,	105	3,360	75	3,140	180	3,250	120	5,760	100	5,000	180	6,480
Stewardson Furnace,	125	4,500	110	3,850	135	4,725	. . .	. . .	. . .	. . .	. . .	. . .
Spartan,	140	5,000	60	4,320	160	5,200	140	5,000	70	5,000	165	5,000
Victor, No. 2,	247	10,868	151	9,060	234	10,530	242	11,648	151	9,060	231	10,395
Victor, No. 3,	230	13,800	220	13,200	230	10,350	229	13,740	218	13,080	228	10,260
Vulcan,	290	13,920	280	12,600	201	12,864	315	17,646	175	7,000	431	15,516
Webster, No. 1,	112	4,032	105	3,780	122	4,392	280	12,810	180	7,200	650	17,550
Webster, No. 3,							260	10,400	. . .	. . .	450	10,350
Watson's,	. . .	. . .	. . .	. . .	. . .	. . .	100	6,600	170	5,100	400	7,200
West Moshannon,	. . .	. . .	. . .	. . .	. . .	. . .	300	14,400	200	11,000	500	19,000

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Argyle,	171	9,000	69	4,000	350	14,000	170	9,000	100	8,000	300	12,000	188	10,000	188	10,000	350	14,000
Atlantic,	260	12,740	210	12,600	371	22,985	255	12,495	205	12,300	357	12,495	. . .	. . .	. . .	. . .	. . .	. . .
Ashland,	170	8,330	120	3,120	200	7,200	160	7,840	125	6,000	220	7,920	150	7,350	120	5,760	200	7,200
Auchor,	. . .	. . .	. . .	. . .	. . .	. . .	190	6,080	120	5,040	210	5,250	220	7,040	120	5,040	300	7,500
Atalanta, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Aurora,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Blaine Run,	132	3,990	79	3,950	245	5,880	120	3,600	65	3,250	227	5,448	. . .	. . .	. . .	. . .	. . .	. . .
Bennington,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Brown,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Colorado,	270	9,720	170	6,120	280	10,080	270	9,720	170	6,120	280	10,080	70	9,720	170	6,120	280	10,080
Cushon,	100	8,000	80	6,400	220	8,800	120	9,900	100	8,000	240	9,600	100	8,000	100	4,000	200	8,000
Conemaugh,	185	6,660	90	3,780	295	7,375	195	7,020	90	3,240	290	7,250	195	7,020	80	3,360	295	7,375
Cambria,	80	3,800	44	1,760	110	3,300	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Coaldale, No. 4,	. . .	. . .	. . .	. . .	. . .	. . .	180	7,560	100	6,060	180	7,200	240	10,080	140	8,400	220	8,800
Columbia, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	400	6,400	110	5,050	160	6,400
Columbia, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	50	2,400	60	2,400	70	3,360
Carbon, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Cherington.	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dixon Mine,	180	8,320	160	7,680	200	9,800	180	8,820	150	7,200	190	9,310	180	8,820	. . .	. . .	190	9,310
Derby,	80	2,880	60	2,420	160	3,200	240	8,640	230	8,280	210	11,340	150	5,400	110	4,400	310	9,060
Decatur,	250	9,656	150	10,120	300	13,360	300	11,356	200	12,870	400	17,360	. . .	. . .	. . .	. . .	. . .	. . .
Drane,	330	10,230	200	8,000	270	10,260	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dysart, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dysart, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Delany,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Eureka, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	380	17,164	200	10,530	340	16,605	. . .	. . .	. . .	. . .	. . .	. . .
Eureka, No. 3,	110	6,132	70	4,280	90	6,096	90	5,334	70	4,280	90	6,096	110	6,132	90	5,080	120	7,448
Eureka, No. 5,	. . .	. . .	. . .	. . .	. . .	. . .	470	14,877	300	13,240	400	15,328	. . .	. . .	. . .	. . .	. . .	. . .
Excelsior,	325	15,825	. . .	. . .	435	17,640	327	16,925	. . .	. . .	500	18,000	364	17,336	. . .	. . .	520	18,720
Elizabeth,	55	3,500	120	2,884	120	3,600	55	3,500	80	1,800	166	4,000	. . .	. . .	. . .	. . .	117	3,500

Empire,							240	14,280	270	10,800	360	14,400	345	14,490	280	11,200	370	14,800
Euclid,																		
Everett,																		
Eldorado,																		
Foster,	430	18,490	400	17,200	445	19,135	365	15,695	380	16,340	530	22,790	420	18,060	290	12,470	360	15,480
Franklin,	340	11,900	420	16,800	500	30,000	340	11,900			495	29,700						
Glenwood,	132	5,280	97	4,365	130	5,850	138	5,520	103	5,047	136	6,020	134	5,360	101	4,545	134	6,030
Glenn,	50	2,475	40	1,960	50	2,100	50	2,378	40	1,960	50	2,100	55	2,722	45	2,227	55	2,310
Gallitzin Shaft,	235	11,632	335	16,582	375	16,875	225	11,137	205	15,097	365	16,425						
Great Bend,	192	5,760	61	2,240	292	8,176	204	6,120	70	2,450	280	7,840	207	6,210	70	2,450	284	7,952
Gosford,	230	7,590	65	2,600	320	7,200							180	5,940	35	1,400	370	8,325
Goss Run,	50	1,750	48	1,920	80	2,000												
Grass Flat, No. 9,													115	11,960	100	6,000	200	12,000
Grass Flat, No. 10,													100	10,400	95	5,700	185	11,100
Grass Flat, No. 11,													103	10,712	120	7,200	190	11,400
Gautier,																		
Griffith's,																		
Glen White,																		
Haws' Shaft,																		
Irvona,													190	7,980			220	9,240
Isabella,																		
Juniata,																		
Karthaus,	220	9,240	165	8,910	256	9,240	237	9,954	176	9,504	281	10,166						
Kittanning,							70	6,300	60	3,240	70	6,300	70	6,300	60	3,240	70	6,300
Laurel Run,	150	6,256	200	8,424	200	9,360	200	7,956	180	7,704	180	8,560	180	7,276	230	9,504	230	10,560
Lancashire, No. 1,	310	10,900	245	7,700	210	11,200	240	8,700	170	5,750	205	10,450	300	9,000	100	4,000	500	10,000
Lancashire, No. 2,	170	7,800	115	4,700	205	8,100	210	10,650	120	6,050	100	9,600	187	9,000	150	6,000	400	10,000
Lower Gautier,	91	4,459	40	1,960	248	4,464	98	4,802	48	2,880	275	4,950	100	4,900	95	2,850	275	4,950
Logan,							200	9,600	95	3,895	300	9,900						
Logan Ridge,							175	6,300	140	5,180	160	5,520	190	6,840	150	2,850	150	5,530
Loyalhanna,																		
Latrobe Coal Works,																		
Mentzer, Ben's Creek,	90	3,240	70	2,840	100	3,000	60	3,960	52	2,184	140	4,200						
Morrisdale, No. 8,																		
Morrisdale, No. 10,																		
Morrisdale, No. 11,	310	17,360	210	8,400	447	16,092	330	17,840	170	6,800	440	15,840	330	17,840	180	7,200	480	17,280
Morrisdale, No. 12,																		
Morrisdale, No. 13,																		
Morrisdale, No. 14,																		
Moshannon,							225	12,600	205	9,225	240	10,560						
Monroe Slope,							221	7,733			117	7,722	268	9,380			142	9,372
M. Saxman,																		
Millwood,																		
Monastery,																		
Martindale Slope,																		
Minersville,																		
Oak Ridge, No. 1,	310	13,485	120	4,200	300	10,800	300	12,350	100	3,500	280	10,080	340	14,790	270	8,100	370	13,320
Oak Ridge, No. 2,							90	3,915	190	3,800	180	5,400	90	3,915	270	3,240	240	4,320
Ocean, No. 1,	220	9,240	192	9,216	256	9,240	220	9,240	192	9,216	256	9,240						
Pacific, No. 1,	450	18,900	270	19,440	697	19,530	450	18,900	255	18,360	675	18,900						
Prospect,																		
Porter,																		

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Rochester,	385	16,170	200	9,600	1,250	78,750	380	15,960	235	11,280	1,165	73,395	385	16,170	195	9,360	1,200	75,600
Rolling Mill Mine,	780	46,800	280	16,800	360	34,560	780	46,800	280	16,800	365	35,040	780	46,800	280	16,800	365	35,040
River View,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	60	2,160	29	1,566	75	3,376
Robertsdale, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Robertsdale, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sterling, No. 1,	240	20,100	250	10,000	237	21,330	285	22,800	245	9,800	265	25,042	230	15,640	220	9,020	230	21,620
Sterling, No. 2,	210	10,080	155	8,060	200	10,000	200	8,400	100	6,500	230	9,200	320	12,800	175	8,750	220	12,100
Sterling Colliery, No. 2,	200	8,400	115	7,475	225	11,000	. . .	. . .	. . .	. . .	. . .	. . .	260	10,920	. . .	. . .	330	13,200
Stineman's,	70	2,520	40	1,800	90	2,700	180	6,480	100	4,500	200	7,200	130	4,680	70	3,780	90	4,860
Standard,	65	3,120	45	2,250	90	3,240	. . .	. . .	. . .	. . .	. . .	. . .	60	2,720	45	2,250	110	3,960
Sonman, No. 1,	130	4,680	100	4,500	240	7,200	270	8,100	135	8,100	310	8,360	290	9,000	150	9,000	86	8,944
Sonman, No. 2,	130	5,460	100	4,500	240	5,760	145	6,090	135	6,075	270	6,480	130	5,460	105	4,725	215	5,160
Spartan,	194	5,000	69	4,830	168	5,040	. . .	. . .	. . .	. . .	. . .	. . .	139	5,000	70	5,000	166	5,000
St. Clair,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Scott & Sons,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
South Fork,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Smittle,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Vietor, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Victor, No. 2,	228	13,680	218	13,080	228	10,260	229	13,740	220	13,200	230	10,350	236	10,384	146	8,760	229	10,305
Victor, No. 3,													226	13,440	215	12,900	225	10,125
Vulcan,	286	13,730	215	9,675	186	11,904	290	13,920	210	9,450	211	13,501	290	13,920	210	9,450	250	16,000
Webster, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Webster, No. 2,	115	5,635	138	4,940	170	4,250	300	14,700	400	14,000	530	13,250	240	11,860	. . .	. . .	400	16,000
Webster, No. 3,	. . .	. . .	. . .	. . .	. . .	. . .	160	8,000	160	6,400	370	10,360	152	7,720	142	5,720	371	10,360
Watson Shaft,	60	3,600	70	2,800	210	3,780	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
West Moshannon,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	APRIL.						MAY.						JUNE.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Argyle,	170	9,000	170	9,000	250	10,000	170	9,000	98	5,000	275	11,000	305	11,000	222	10,000	275	11,000
Atlantic,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Ashland,	140	6,860	115	5,520	160	5,760	160	7,840	125	6,000	230	8,280	150	7,350	120	5,760	200	7,200
Anchor,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Atalanta, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Aurora,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	125	5,000	100	4,500	350	5,600
Blaine Run,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Bennington,	95	2,850	70	3,150	183	3,892	157	4,710	98	4,116	156	4,686	120	3,600	60	3,000	71	3,330
Brown,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Colorado,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Cushon,	120	9,660	100	4,000	220	3,800	100	8,000	120	4,830	230	9,200	260	9,360	180	5,400	270	9,720
Conemaugh,	190	6,840	90	3,780	290	7,250	185	6,660	80	3,360	275	6,875	100	8,000	48	2,304	220	8,800
Cambria,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	185	6,660	100	4,200	310	6,510
Coaldale, No. 4,	. . .	. . .	. . .	. . .	. . .	. . .	200	8,400	120	7,200	205	8,200	. . .	. . .	. . .	. . .	. . .	. . .
Columbia, No. 1,	300	6,000	90	2,000	200	8,000	350	7,000	150	7,500	300	12,000	300	6,000	150	6,000	200	8,000
Columbia, No. 2,	50	2,000	50	2,000	100	4,000	100	4,200	100	4,000	150	6,000	. . .	. . .	. . .	. . .	. . .	. . .
Carbon, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Cherington,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dixon Mine,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Derby,	200	9,800	160	7,680	250	12,250	200	9,800	150	7,200	200	10,780	180	7,820	130	6,240	250	10,250
Decatur,	201	7,200	150	6,000	300	7,500	. . .	. . .	. . .	. . .	. . .	. . .	170	6,120	80	4,800	215	6,450
Drane,	300	11,356	200	12,870	350	15,360	275	10,506	150	10,120	325	14,360	. . .	. . .	. . .	. . .	. . .	. . .
Dysart, No. 1,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dysart, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Delany,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Eureka, No. 2,	380	17,164	180	9,657	330	16,204	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Eureka, No. 3,	100	5,754	70	4,280	100	6,576	110	5,040	80	3,200	100	4,800	400	17,967	210	10,980	350	17,077
Eureka, No. 5,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	100	5,754	70	4,280	90	6,096
Excelsior,	358	17,542	. . .	. . .	520	18,720	340	16,660	. . .	. . .	485	17,460	500	15,750	320	14,000	430	16,450
Elizabeth,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	350	17,150	. . .	. . .	490	17,640
													55	3,465	59	3,540	100	3,000

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	APRIL.						MAY.						JUNE.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Empire,	370	15,540	290	11,600	380	15,200	. . .	. . .	. . .	. . .	. . .	. . .	315	13,230	. . .	. . .	340	13,600
Euclid,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Everett,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Eldorado,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Foster,	360	15,480	250	10,750	410	17,630	250	10,750	190	8,170	280	12,040	280	11,760	. . .	. . .	330	13,860
Franklin,	345	10,350	. . .	. . .	429	29,700	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Glenwood,	132	5,280	97	4,365	129	5,625	124	4,960	90	4,050	121	5,445	130	5,200	95	4,275	128	5,760
Glenn,	50	2,870	40	1,960	50	2,100	50	2,475	40	1,960	50	2,100	55	2,722	45	2,227	55	2,310
Gallitzin Shaft,	225	8,100	210	13,640	375	16,875	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Great Bend,	190	5,700	75	2,625	275	7,700	185	5,550	85	2,975	285	7,980	193	5,790	83	2,905	280	7,840
Gosford,	160	5,285	35	1,400	370	8,225	320	7,200	. . .	. . .	230	7,590	. . .	. . .	. . .	. . .	. . .	. . .
Goss Run,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Grass Flat, No. 9,	160	1,664	160	9,600	400	24,000	170	17,680	170	10,200	300	18,000	165	17,160	265	15,900	380	22,800
Grass Flat, No. 10,	130	13,520	100	6,000	300	18,000	160	16,640	160	9,600	280	16,800	225	23,400	190	11,400	485	29,100
Grass Flat, No. 11,	150	15,600	170	10,200	350	21,000	180	18,720	200	12,000	320	19,200	240	24,930	310	20,400	405	24,300
Gautier,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Griffiths,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Glen White,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Haws' Shaft,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Irvona,	325	17,430	. . .	. . .	225	9,430	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Isabella,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Juniata,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Karthaus,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Kittanning,	70	6,300	60	3,240	70	6,300	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Laurel Run,	200	7,956	350	10,224	250	11,360	200	7,956	300	12,024	300	12,024	200	7,956	300	12,014	300	13,360
Lancashire, No. 1,	210	8,855	120	5,165	210	11,500	. . .	. . .	. . .	. . .	. . .	. . .	333	10,000	. . .	. . .	611	11,000
Lancashire, No. 2,	190	7,600	200	6,000	210	8,230	. . .	. . .	. . .	. . .	. . .	. . .	36	3,420	70	3,150	105	3,150
Lower Gautier,	100	4,900	75	3,000	277	4,986	110	4,620	41	4,428	220	4,400	. . .	. . .	. . .	. . .	. . .	. . .
Logan,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Logan Ridge,	. . .	. . .	. . .	. . .	. . .	. . .	170	6,140	160	3,140	160	5,920	210	7,560	140	7,000	200	7,000

Loyalhanna,																				
Latrobe Coal Works,																				
Mentzer, Ben's Creek,																				
Morrisdale, No. 8,							270	12,860	212	8,680	201	12,864	227	12,992	193	7,720	353	12,708		
Morrisdale, No. 10,							261	12,528			195	24,800	101	5,656			150	5,400		
Morrisdale, No. 11,							180	8,640			228	14,272	138	7,728	198	7,920	541	21,660		
Morrisdale, No. 12,							521	25,008			521	25,008	387	21,672			495	19,800		
Morrisdale, No. 13,							240	11,520	191	7,640	180	11,790	215	12,040	225	9,000	340	12,040		
Morrisdale, No. 14,							246	11,808	197	7,880	185	11,840	161	9,016	151	6,040	250	9,000		
Moshannon,	245	13,720	225	10,125	260	11,440	235	12,600	205	9,225	240	10,560	230	12,880	210	9,450	245	10,780		
Monroe Slope,	221	7,735			172	7,722														
M. Saxman,																				
Millwood,																				
Monastery,																				
Martindale Slope,																				
Minersville,																				
Oak Ridge, No. 1,	277	18,550	132	6,600	302	20,530	200	8,700	60	2,760	280	8,960	220	13,385	110	5,280	300	14,850		
Oak Ridge, No. 2,							80	3,480	200	2,400	200	3,600	80	3,480	220	2,640	190	3,420		
Ocean, No. 1,																				
Pacific, No. 1,																				
Prospect,																				
Porter,																				
Rochester,	264	47,610	211	40,290	1,235	77,805	151	48,330	134	41,860	1,130	71,190	235	10,575	190	9,120	1,000	63,000		
Rolling Mill Mine,	780	46,800	280	16,800	360	34,560	780	46,800	280	16,800	360	34,560	780	46,800	280	16,800	360	36,560		
River View,	60	2,160	54	351	75	3,376	60	2,160	74	1,300	84	3,240								
Robertsdale, No. 1,																				
Robertsdale, No. 2,																				
Sterling, No. 1,	232	36,900	211	19,000	262	37,690	245	16,660	230	10,580	235	22,090	220	17,160	220	8,800	200	19,200		
Sterling, No. 2,	220	9,240			235	9,400	320	12,800	220	9,400	260	14,300	175	11,375	135	7,762	210	13,020		
Sterling Colliery, No. 2,							280	13,720	160	10,400	360	14,400	190	9,120	160	6,400	400	16,000		
Stineman's,	70	2,520	40	2,160	40	2,160	130	4,680	120	4,320	160	5,760	90	3,240	50	2,900	70	3,780		
Standard,																				
Sonman, No. 1,													110	4,140	55	1,760	160	4,800		
Sonman, No. 2,													125	5,200	100	4,500	220	5,280		
Spartan,	140	5,000	70	5,000	166	5,000														
St. Clair,																				
Scott & Sons,																				
South Fork,																				
Smittle,																				
Victor, No. 1,							264	13,464	192	11,520	256	12,800	264	13,464	191	11,460	255	12,750		
Victor, No. 2,	223	13,380	215	12,900	225	10,125	235	10,340	14	8,700	228	10,260	236	10,384	146	8,760	228	10,260		
Victor, No. 3,	234	10,291	145	8,700	228	10,260	227	13,620	219	13,140	227	10,215	227	13,680	218	13,080	228	10,260		
Vulcan,							259	12,432	198	8,910	194	12,316								
Webster, No. 1,							120	4,226	80	3,360	105	4,410								
Webster, No. 2,	220	10,780			400	10,000	220	10,780	180	6,300	440	11,000	210	8,290	190	7,220	300	7,200		
Webster, No. 3,	152	7,720	145	5,200	310	8,900														
Watson Shaft,																				
West Moshannon,	220	10,560	100	6,000	490	22,050														

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Argyle,	208	11,000	200	8,000	280	11,200	200	10,600	190	7,600	275	11,000	220	11,660	250	9,000	295	11,800
Atlantic,																		
Ashland,																		
Anchor,																		
Atlauta, No. 2,																		
Aurora,																		
Blaine Run,	100	4,200	150	3,000	90	4,500												
Benniugton,																		
Brown,							316	13,275	400	12,000	290	14,500	375	15,800	410	12,300	400	16,000
Colorado,																		
Cushon,																		
Conemaugh,							120	9,600	120	4,800	250	10,000	120	9,600	120	4,800	250	10,000
Cambria,							190	6,810	90	2,700	280	7,060	200	7,200	95	2,850	300	7,500
Coaldale, No. 4,																		
Columbia, No. 1,																		
Columbia, No. 2,																		
Carbon, No. 1,																		
Cherington,							100	4,200	90	2,700	110	4,400	120	5,100	95	2,850	180	5,200
Dixon Mine,																		
Derby,																		
Decatur,																		
Drane,																		
Dysart, No. 1,																		
Dysart, No. 2,																		
Delany,																		
Eureka, No. 2,																		
Eureka, No. 3,																		
Eureka, No. 5,																		
Excelsior,																		
Elizabeth,																		
Empire,																		

Euclid,							100	3,600	90	2,700	105	3,150	90	3,240	80	2,400	100	3,300		
Everett,							180	8,820	210	8,400	185	9,065	175	8,575	200	8,000	180	8,820		
Eldorado,																				
Foster,																				
Franklin,							390	16,380	340	13,600	400	16,800	400	16,800	350	14,000	420	17,640		
Glenwood,																				
Glen,																				
Gallitzin Shaft,																				
Great Bend,							240	13,200	220	9,900	300	13,500	220	12,100	220	9,900	300	13,500		
Gosford,							190	5,700	85	2,975	275	7,700	180	5,400	80	2,800	275	7,700		
Goss Run,																				
Grass Flat, No. 9,																				
Grass Flat, No. 10,																				
Grass Flat, No. 11,																				
Gautier,																				
Griffith's,							105	4,410	39	4,212	210	4,200	110	4,620	39	4,212	240	4,800		
Glen White,																				
Haws' Shaft,																				
Irvona,							200	10,000	250	7,500	250	10,090	190	9,500	200	6,000	245	9,700		
Isabella,							220	9,250	200	8,000	480	9,600	220	9,250	200	8,000	475	9,400		
Juniata,							365	15,330	170	7,140	375	15,750	360	14,800	170	6,940	370	15,000		
Karthaus,																				
Kittanning,																				
Laurel Run,																				
Lancashire, No. 1,																				
Lancashire, No. 2,																				
Lower Gautier,																				
Logan,																				
Logan Ridge,																				
Loyalhanna,																				
Latrobe Coal Works,							520	28,210	160	7,840	605	21,302	525	28,245	160	7,840	625	22,360		
Mentzer, Ben's Creek,							100	7,200	90	4,410	120	5,880	120	8,640	100	4,900	120	6,370		
Morrisdale, No. 8,																				
Morrisdale, No. 10,																				
Morrisdale, No. 11,																				
Morrisdale, No. 12,																				
Morrisdale, No. 13,																				
Morrisdale, No. 14,																				
Moshannon,																				
Monroe Slope,																				
M. Saxman,							90	5,940	46	2,300	170	5,950								
Millwood,							150	6,300	140	5,880	180	7,560								
Monastery,							220	11,000	200	8,000	390	11,600	180	9,001	140	5,600	250	9,100		
Martindale Slope,							450	18,900	50	2,400	256	20,480	475	19,950	50	2,400	250	20,000		
Minersville,																				
Oak Ridge, No. 1,																				
Oak Ridge, No. 2,																				
Ocean, No. 1,																				
Pacific, No. 1,							50	3,000	50	1,100	80	3,200								
Prospect,																				
Porter,	4 0	10,700	370	7,090	380	10,800	280	8,970	90	3,600	280	11,270	240	7,200	200	6,000	200	8,100		
Rochester,							450	11,250	400	8,000	400	10,000								

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Rolling-Mill Mine,	750	45,000	280	16,800	360	34,560	800	48,000	300	18,000	365	35,040	700	42,000	280	16,800	365	35,040
River View,																		
Robertsdale, No. 1,	680	25,100	570	16,800	820	25,400	670	24,120	625	17,500	810	24,300	670	24,120	625	17,500	810	24,300
Robertsdale, No, 2,																		
Sterling, No. 1,																		
Sterling, No. 2,																		
Sterling Colliery, No. 2,																		
Stineman's,							270	9,520	110	6,500	120	10,200						
Standard,							95	3,800	120	3,000	140	4,200						
Sonman, No. 1,							275	8,250	100	6,000	300	9,000						
Sonman, No. 2,							85	3,570	65	2,925	160	3,840						
Spartan,							140	5,000	120	4,600	140	5,100						
St. Clair,							400	16,000	300	15,000	350	17,500	450	18,000	340	17,000	370	18,500
Scott & Sons,							300	12,000	400	8,000	450	13,500						
South Fork,							110	4,400	150	3,000	150	4,500						
Smittle,																		
Victor, No. 1,																		
Victor, No. 2,																		
Victor, No. 3,																		
Vulcan,																		
Webster, No. 1,																		
Webster, No. 2,																		
Webster, No. 3,																		
Watson's Shaft,																		
West Moshannon,																		

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	OCTOBER.						NOVEMBER.						DECEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Argyle,	334	13,000	280	11,000	300	12,000	169	9,000	119	5,000	250	10,000	285	12,000	125	8,000	400	16,000
Atlantic,																		
Ashland,																		
Anchor,																		
Atalnta, No. 2,																		
Aurora,																		
Blaine Run,																		
Bennington,	376	16,700	130	5,000	375	15,800	375	15,600	122	4,300	312	14,800	374	16,900	129	5,000	372	16,300
Brown,							340	5,440	100	3,600	375	6,000	350	5,600	100	3,600	360	5,760
Colorado,																		
Cushon,	150	12,000	250	10,000	310	12,400	140	11,200	150	6,000	285	11,400	175	14,000	160	6,400	360	14,000
Conemaugh,	190	6,840	85	3,590	275	6,875	195	7,020	75	3,150	285	7,125	200	7,200	80	3,360	80	7,375
Cambria,																		
Coaldale, No. 4,																		
Columbia, No. 1,																		
Columbia, No. 2,																		
Carbon, No. 1,	100	3,600	90	2,700	110	3,900	108	3,888	90	2,700	110	3,900	120	4,320	95	2,850	120	4,700
Cherington,							180	7,560	150	7,200	190	7,980	170	7,140	130	6,240	180	7,560
Dixon Mine,																		
Derby,																		
Decatur,																		
Drane,																		
Dysart, No. 1,	90	2,700	40	2,400	50	2,800	140	4,200	60	3,600	80	4,480	200	6,000	70	4,200	110	6,160
Dysart, No. 2,							110	4,620	100	3,000	120	4,800	120	5,040	110	3,300	130	5,200
Delany,	160	8,000	80	2,400	170	8,500	160	8,000	80	2,400	170	8,500						
Eureka, No. 2,																		
Eureka, No. 3,																		
Eureka, No. 5,																		
Excelsior,																		
Elizabeth,																		
Empire,																		

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	OCTOBER.						NOVEMBER.						DECEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Euclid,																		
Everett,	190	9,310	300	6,300	195	9,555	240	11,760	270	9,000	242	11,858						
Eldorado,	60	2,400	50	1,500	72	2,780	60	2,400	50	1,500	70	2,700						
Foster,	410	17,220	260	10,920	530	22,260	410	17,220	260	10,920	520	21,840	400	16,800	280	11,760	575	24,150
Franklin,																		
Glenwood,																		
Glen,																		
Gallitzin Shaft,	340	15,300	190	10,260	350	15,750	345	15,525	195	9,750	360	16,200	420	18,900	285	12,825	450	20,250
Great Bend,	190	5,700	90	3,150	290	10,150	250	7,500	200	6,000	300	9,000	400	12,000	300	9,000	410	12,300
Gosford,																		
Goss Run,																		
Grass Flat, No. 9,																		
Grass Flat, No. 10,																		
Grass Flat, No. 11,																		
Gautier,	140	5,600	42	3,024	180	5,760	145	5,820	43	3,096	183	5,856	160	6,300	48	3,316	197	6,304
Griffith's,							170	7,560	100	2,400	340	8,160	200	9,600	110	2,640	410	9,800
Glen White,							200	4,400	100	3,600	200	5,000	240	6,000	80	3,200	300	6,600
Haws' Shaft,							100	8,000	200	6,860	200	8,200	110	8,800	210	7,980	220	9,240
Irvona,	220	9,240	150	6,750	480	9,600	220	9,240	150	6,750	480	9,600	240	10,080	170	7,650	510	10,200
Isabella,	350	14,700	165	6,930	360	15,120	375	15,750	160	6,720	370	15,540	390	16,380	170	7,140	400	16,800
Juniata,							60	3,240	90	2,700	70	3,780	70	3,780	100	3,000	80	4,000
Karthaus,																		
Kittanning,																		
Laurel Run,																		
Lancashire, No. 1,																		
Lancashire, No. 2,																		
Lower Gautier,																		
Logan,																		
Logan Ridge,																		
Loyalhanna,																		

Latrobe Coal Works,	110	7,920	100	4,900	120	5,880	120	8,640	110	5,390	130	6,370	120	8,640	100	4,900	130	6,370
Mentzer, Ben's Creek,	85	3,060	70	2,100	90	3,240	90	3,300	75	2,250	100	3,600	110	3,960	80	2,400	120	4,320
Morrisdale, No. 8,																		
Morrisdale, No. 10,																		
Morrisdale, No. 11,																		
Morrisdale, No. 12,																		
Morrisdale, No. 13,																		
Morrisdale, No. 14,																		
Moshannon,																		
Mon oe Slope,																		
M. Saxman,	160	6,720	100	4,200	165	7,000	226	7,910	75	5,625	120	7,920	260	8,320	130	6,500	130	8,580
Millwood,	170	8,500	130	5,200	100	10,000	170	6,940	110	4,420	170	7,140	150	6,300	110	4,620	160	6,720
Monastery,	200	16,000	100	4,800	400	16,800	200	10,000	150	9,000	120	12,000	300	12,600	240	9,360	280	13,920
Martindale Slope,							250	20,000	65	3,120	480	20,160	275	22,000	83	3,984	533	22,386
Minersville,							100	4,000	50	2,000	100	4,200						
Oak Ridge, No. 1,	290	9,120	120	8,200	190	10,640	245	8,890	230	7,000	33	11,760	260	8,320	130	6,500	130	8,580
Oak Ridge, No. 2,																		
Ocean, No. 1,	70	3,000	60	2,400	75	3,200	70	3,000	60	2,400	75	3,200	100	4,300	80	3,200	110	4,600
Pacific, No. 1,																		
Prospect,																		
Porter.	550	14,000	400	12,000	325	16,250	450	13,500	190	6,400	350	9,800	450	14,300	190	6,400	350	13,900
Rochester,																		
Rolling Mill Mine,	700	42,000	300	18,000	450	43,200	800	48,000	300	18,000	365	35,040	800	48,000	300	18,000	400	33,400
River View,																		
Robertsdale, No. 1,	300	10,800	400	8,400	400	14,400	340	11,240	640	11,520	350	12,600	300	10,800	400	8,400	400	14,400
Robertsdale, No. 2,	400	14,400	700	12,600	580	14,500	350	12,600	600	10,800	510	12,700	390	13,040	600	10,800	540	13,500
Sterling, No. 1,																		
Sterling, No. 2,																		
Sterling Colliery, No. 2,																		
Stineman's,	280	10,080	130	7,800	120	10,200	380	13,680	140	8,400	150	13,150	400	14,400	180	10,800	180	15,300
Standard,	100	4,800	50	2,500	140	5,400	90	4,320	45	2,250	130	4,680	110	5,280	60	3,000	150	5,400
Sonman, No. 1,	120	4,320	90	4,000	200	6,000	130	4,680	100	4,500	200	6,000	200	7,200	120	5,400	270	8,100
Sonman, No. 2,							200	8,400	80	3,600	360	8,640	220	9,240	180	8,100	280	6,720
Spartan,							140	5,000	100	3,000	135	5,400	150	5,250	120	3,600	140	5,600
St. Clair,	500	20,000	370	18,500	410	20,500	500	20,000	300	16,200	400	20,000	450	18,000	300	16,200	370	18,500
Scott & Sons,																		
South Fork,																		
Smittle,													180	10,260	100	5,400	190	11,000
Victor, No. 1,							90	3,600	65	2,000	100	3,700						
Victor, No. 2,																		
Victor, No. 3,																		
Vulcan,																		
Webster, No. 1,																		
Webster, No. 2,																		
Webstor, No. 3,																		
Watson Shaft,	250	10,000	240	9,600	395	15,800	290	11,600	250	9,000	420	16,000	260	11,650	250	10,000	400	16,000
West Moshannon,																		

TABLE IV.—LIST OF ACCIDENTS *occurring in the mines of the Sixth Bituminous Coal District of Pennsylvania, for the year ending December 31, 1885.*

Date of accident.	Name of Person Injured.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident.
1884.								
Nov. 3	Thomas Queen,	24	Single,		Cushon,	Cambria,		Slightly hurt by railroad cars.
11	Harry Hottiugham,	30	Married,	3	Irvona Mine,	Clearfield,	Nov. 13	Fatally injured by fall of coal.
17	Daniel Call,	50	do.		Rolling Mill,	Cambria,		Leg broken by fall ef coal.
23	Patrick Moriarty,	45	do.		Glen White,	Blair,		Slightly injured.
25	Beujamin Byers,	45			Argyle Mine,	Cambria,		Leg broken by fall of coal.
Dec. 2	Elisha Donava,				do.	do.		Leg broken by fall of coal.
13	Henry O'Flick,	36			Benediet Mine,	Huntingdon,		Arm broken by fall of coal.
31	Thomas Williams,	30	Married,		Millwood Shaft,	Westmoreland,		Leg broken by pit wagon.
1885.								
Jan. 2	William Hahn,	35	do.		Glen White,	Blair,		Slightly injured ontside.
8	James Murray,	38	Single,		do.	do.		Leg broken and arm crushed.
14	Phillip Sloan,	50	Married,		Rolling Mill Mine,	Cambria,	Jan. 15	Killed by being rnn over by mine locomotive when going from his work.
15	Alexander Lang,	48	do.		Argyle Miue,	do.		Shoulder bone broken by fall of coal.
15	Benjamin Miller,	23	Single,		Cambria Mine,	Bedford,	Jan. 19	Killed by fall of coal.
20	Andrew Stinely,	29	Married,		Bennington Slope,	Blair,		Killed by being kicked in the head by a mule.
Feb. 9	Martin Daller,	40			Robertsdale,	Huntingdon,		Collar bone broken by fall of coal.
Mch. 21	Henry McCoy,				Monroe Slope,	Cambria,		Leg bruised by fall of coal.
May 16	Richard Wensel,				Rolling Mill Mine,	do.		Back hurt severely by fall of coal.
20	Alexander Leslie,				Lower Gautier,	do.		Collar bone broken by fall of coal.
27	Alexander Loug,				Rolling Mill Mine,	do.		Leg broken by trying to jump cars while in motion.
July 2	Thomas McKernan,	53	Married,		Latrobe Coal Works,	Westmoreland,		Leg broken.
Aug. 8	Thomas Sherwood,		do.		Martindale Mine,	Cambria,		Back and head badly bruised by coal.
8	William Sherwood,		Single,		do.	do.		Slightly injured by the same fall as above. Father and son; by neglect of spragging their coal, both were hurt.
Dec. 31	Frank Hill,	18	do.		Monastery Mine,	Westmoreland,	Jan. 1	Fatally injured by being caught between the car and a prop; was a miner, but took to hauling out a car for the driver, and on the way out of the room his lamp was knocked off of his head, and, being on the front of the car, he was caught, by jumping off as stated, and fatally injured; he died before they got him ont of the mine.

TABLE V.—*Showing the grand total of employés, horses, mules, engines, pumps, boilers, and powder employed, tons of coal mined and shipped, fatal and non-fatal accidents, &c., in the Sixth Bituminous Mine District for the year ending December 31, 1885.*

Names of Counties, and Parts of Counties in the District.	Total number of men employed.	Total number of boys employed.	Total number of horses and mules employed.	Total number of engines and pumps employed.	Total number of boilers employed.	Total number of kegs of powder consumed.	Total number of tons of coal produced.	Total number of tons of coal shipped.	Total number of fatal accidents.	Total number of non-fatal accidents.	Total number of times air measurements were taken.
Cambria, Blair, Huntingdon, Bedford, Fulton, Indiana, and part of Westmoreland and Clearfield, ...	3,878	230	375	44	49	. . . . .	2,472,504	1,609,951	4	14	

SEVENTH DISTRICT.

To the Honorable J. SIMPSON AFRICA, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania:*

SIR: I have the honor to submit to you my first report of the Seventh bituminous district, for the year ending December 31, 1885. The district comprises that part of Allegheny county west of the Allegheny, Youghiogheny, and Monongahela rivers, and that part of Beaver county south of the Ohio river. The number of mines contained therein which come under the law is eighty-five. Since August 11, the date of my appointment to office, I have visited the whole of the mines in the district, and some of them twice, and, in the majority of instances, it is satisfactory to note that they were found in reasonably good condition; but on the other hand, there were some instances where a great deal of improvement was needed, principally in the ventilation. There are a considerable number of mines in the district, and some of them very extensive, employing from two hundred and twenty down to twenty miners, in which no artificial methods are applied to produce ventilation. Those mines were found, with very few exceptions, to be deficient in the amount of air-current required to keep them free from noxious gases and in a healthy condition, fit for men to work therein, but in most instances the mine officials promised to carry out my instructions, and increase the flow of air-current through the workings, and so comply with the law in this respect. Some few mines in this district are endangered by the pipes, through which natural gas is taken at a very high pressure from the gas wells to the city of Pittsburgh, being laid over the mines. The pipes are laid in the following manner: A ditch or trench is dug from three to five feet deep, the pipes are laid therein, after which the ditch is again filled up. Where the distance from the bed of the trench wherein the pipes are laid to the coal bed below is considerable, say one hundred and fifty feet and upward, the danger would be very remote, but where there are only a few feet of strata between the pipes and the coal bed below, the danger is imminent, as when the covering of the pipes becomes frozen in the winter season, all avenues of escape to the surface would be closed, and any escaping gas would be forced through the crevices of the strata into the mine below; or where the pillars of coal are being removed, the strata will become broken to the surface, causing a subsidence which would either break the pipes or dislocate them at the joints, in which case the escaping gas would blow through the broken strata and fill the mine in a short space of time. All pipes used to convey natural gas passing over mines where the coal bed is near to the surface, should, in my judgment, be laid on the surface in such a manner as the es-

caping gas would become diffused in the atmosphere, and rendered harmless. Some of the coal operators, whose mines are endangered thereby, have made application to court to have the gas companies lift their pipes from the underground trench and place them on the surface, so that safety to life and property in their mines may be secured; but as yet no decision has been rendered in the matter.

In accordance with section fifteen of the mining law, I have held three examinations, and granted forty-three certificates of competency to men to act as fire-bosses. The board of examiners have held one examination, and granted sixty certificates of service, and twenty-four certificates of competency, to men to act as mine bosses. The board of examiners for this district is composed of the following gentlemen: Rodger Hartley, coal operator; Augustus Stinner, miner, and myself. I note with satisfaction that the fifteenth section of the mining law, requiring certificates to be granted to competent persons after passing an examination, has aroused a spirit of inquiry among the mining community, and I look forward with pleasure to the near future, when we will have a class of men acting as mine-bosses and fire-bosses who will fully understand and be able to cope with the many dangers lurking in the dark caverns of our coal mines.

The river mines were shut down for a period of four months by reason of a protracted strike of the miners, which has considerably decreased the total production of the district for the past year; the mines are, however, again in operation, with reasonable prospects for the future.

The number of fatal accidents during the year was eleven, and the number of non-fatal accidents, so far as I can ascertain, was thirteen, making a total of twenty-four.

Number of mines in the district,	85
Total amount of coal mined, in tons of 2,000 pounds each,	3, 058, 531
Number of persons employed inside,	8, 730
Number of persons employed outside,	794
Total number of persons employed,	9, 524
Mules inside and outside,	651
Number of fatal accidents,	11
Number of non fatal accidents, as reported,	13
Total accidents,	24
Number of tons per fatal accident,	278,048
Number of widows,	5
Number of orphans,	13
Number of employés to each fatal accident,	866
Number of coke ovens in operation during the year,	67

Accompanying this report will be found a copy of a code of rules framed in accordance with section five of the mining law by the operators of this district, which, if adhered to, will establish good discipline in the mines, and be the means, I trust, of decreasing the number of accidents, most of

which are caused by neglect or carelessness on the part of some one; oftentimes the parties injured are at fault.

Yours, respectfully,

JAMES BLICK.

HOMESTEAD, *February, 1886.*

LITTLE SAW MILL RUN MINES.

Enterprise.

Located at Banksville, owned and operated by Hartley & Marshall. This is an extensive mine, being over two miles from the pit mouth to the extremity of the workings, employs two hundred and fifty miners, and the usual number of day hands. The output is about one thousand tons per day. The coal is brought from the working-places to the main roadway by mules, after which it is transported by a locomotive upward of one mile along the main tunnel, from which point it is taken to the pit mouth, by means of a stationary engine and wire rope, a distance of one thousand six hundred yards. This mine is laid off on the double-entry system; two fire-bosses are employed to examine the mine every morning, previous to the men commencing work. It is under the skillful and careful supervision of Rodger Hartley, Esq., assisted by W. R. Wilson, mining engineer. Both the above gentlemen have had a long and varied experience, and are not often excelled in mine management. The mine is ventilated by fan and furnace power. Amount of air passing, thirty-one thousand cubic feet per minute. The sinking of a new shaft at the extreme end of the workings has just been completed, which will be used as the main inlet for the ventilating current, and when the contemplated improvements are completed, the quantity of air in circulation can be increased three-fold, if necessary. Fire-damp is generated rather freely in this mine.

Venture.

Owned and operated by Gray & Bell. This is also an extensive mine; they employ, when in full operation, about one hundred and sixty miners, ten boys, and twenty-five day hands. The haulage is done by the tail-rope system, which extends into the mine a distance of two thousand six hundred and fifty yards. Amount of coal produced averages about fifteen thousand bushels per day. Worked on the double-entry system. The mine is under the skillful management of Martin Gray, Esq., with good, practical men as assistants. Is ventilated by furnace and a Guibal fan, producing upwards of thirty thousand cubic feet of air-current per minute; but, if necessary, could be increased to forty-five thousand or fifty thousand when the fan is driven to its full capacity. The mine is in good condition in all respects.

Chess.

Owned and operated by Gray & Bell. This mine is connected with the

underground workings of the Venture mine. It employs, when running full, about one hundred men. The coal is taken from the pit-head through a tunnel, one thousand two hundred yards long, whence it is run down an inclined plane to the tipple. On account of the introduction of natural gas into the mills where the product of this mine was formerly consumed, the mine has worked very little for some time past. It is ventilated by the same fan as the Venture mine, and is, in all respects, in good condition.

Coal Ridge.

Owned and operated by Gray & Bell. This mine was doing very little at the time of my visit. Employs about forty miners. Ventilated by a furnace, the capacity of which is about ten thousand cubic feet of air-current per minute. The mine is under good management, and was, at the time of my visit, in good condition.

Eclipse.

Operated by John Carlin & Co. Is an old mine about exhausted. Employed, at the time of my visit, fifty miners. The coal is difficult to mine on account of the overlying strata being extremely soft and dangerous, so much so that in order to protect life and limb, I deem it necessary to advise that work be discontinued in two or three rooms. The ventilation is produced by a small furnace. Amount of air passing at outlet, five thousand eight hundred cubic feet per minute.

Fox.

Owned and operated by Thomas Fox. This mine employs forty miners, two drivers, and one day hand inside, and two day men outside. Output about one hundred tons per day, used as local trade, chiefly for household use. The ventilation is produced by furnace power. The mine, when visited, was in good condition.

MINES ON THE PITTSBURGH, CINCINNATI AND ST. LOUIS RAILROAD.

Mansfield, No. 1.

Operated by the Mansfield Coal and Coke Company. This mine is worked on the single-entry system. Ventilation natural. Amount of air in circulation through the mine, nine thousand five hundred cubic feet per minute. I found the mine in average condition. The tail-rope system of haulage is used.

Camp Hill.

Operated by David Steen. Employs about sixty-five miners. The coal is hauled by mules to the main parting on the dilly road, from whence it is taken to the pit mouth by the head and tail-rope system, worked by a stationary engine fixed at the mine mouth. The wire rope runs for a distance of one mile into the mine. The mine is worked on the single-entry sys-

tem, with an airway driven alongside the main headings for ventilating purposes. The ventilation is by furnace power. Amount of air passing at the inlet, six thousand cubic feet per minute. The mine is in fair condition.

Laurel Hill.

Operated by W. P. Rend. This is an extensive mine. Employed, at time of my visit, three hundred men and boys. The coal is undermined by coal-cutting machines, of which there are about twenty-six in operation, being worked by compressed air, which seems to be a perfect success. The mine is ventilated by a fan. I measured at the inlets, and found the quantity to be twenty-seven thousand cubic feet of air-current per minute, and at the outlet, thirty-seven thousand cubic feet per minute. The large excess at outlet above that of inlet is due to the air discharged by the coal-cutting machines. The tail-rope system is in use at this mine. The output is about one thousand tons per day. The general condition of the mine is good.

Star.

Operated by Francis Mankedick. Number of miners employed, about forty-six. Output per day, one hundred and forty tons, worked by single-entry. Ventilated by furnace power. Quantity of air passing, three thousand and forty cubic feet per minute. The ventilation was defective; in other respects the mine was in an average condition.

Willow Grove.

Operated by the Willow Grove Coal Company. Employs one hundred and thirty miners, two boys, and eight day hands. The system of working is single-entry. Ventilation produced by furnace power. Quantity of air-current passing, thirteen thousand eight hundred and sixty cubic feet per minute. The distribution of the air-current was in a wretched condition, only one thousand five hundred and sixty cubic feet of air per minute was passing through the heading, where most of the men were working. The condition of the greater part of the mine being unfit for men to work in, I notified the mine-boss to discontinue work at the face of headings, and at once repair the stoppings and erect a new one, and cause the air-current to be conducted around the workings in a proper manner. I was informed by the mine-boss, about one week after my visit, that my instructions had been carried out, and the condition of the mine greatly improved.

National.

Operated by National Coal Company. The mine is worked on the double-entry system. The coal is hauled from the main parting to the tipple by the tail-rope system. Ventilated by a furnace. Quantity of air

circulating through the workings, fifteen thousand seven hundred and eighty cubic feet per minute. The mine is well managed, and is, in all respects, in good condition.

Oak Ridge.

Operated by the Oak Ridge Coal Company. Employed, at time of my visit, sixty-five miners. System of haulage, tail rope. Mine laid off on the single-entry system. Ventilated by furnace and exhaust steam. Quantity of air in circulation, sixteen thousand eight hundred cubic feet per minute. The mine is in good condition.

Fort Pitt.

Operated by the Fort Pitt Coal Company. The number of miners employed was, at the time of my visit, about forty-five, with the usual number of day hands. The ventilation was defective, there being no artificial motor employed to produce a regular air-current. Quantity of air passing, three thousand two hundred and thirty cubic feet per minute. In other respects the mine was in pretty fair order.

Cherry.

Operated by Morris McCue. Employs about forty-four miners. Output about two hundred tons per day. Worked on the single-entry system. Ventilation natural. Quantity of air passing, three thousand eight hundred and seventy cubic feet per minute. The ventilation was insufficient. In other respects the mine is in good order.

Grant.

Operated by Grant Coal Company. Number of miners employed, at time of my visit, one hundred and twenty; mule-drivers fifteen, and four day men. Output about four hundred tons per day. Worked on the single-entry system. Ventilated by a large furnace, capable of producing twenty-five thousand cubic feet of air per minute. The drainage is somewhat defective; otherwise the mine is in pretty fair order.

McConnell.

Operated by Joseph McConnell. Worked by single-entry. Ventilation natural. Quantity of air passing at inlet, four thousand nine hundred cubic feet per minute. I found the mine to be in pretty fair order.

Ewing.

Operated by Ewing & Gordon. Worked by single-entry. Employs thirty miners. Ventilation natural. Quantity of air passing through the workings, two thousand five hundred and twenty cubic feet per minute, which is insufficient. A furnace will be erected, after which the mine will be well ventilated.

Idlewood.

Operated by Phœnix Gas Coal Company. Employs forty miners. Worked by single-entry. Ventilated by furnace power. Quantity of air passing, six thousand cubic feet per minute. This mine is endangered by natural gas pipes being laid in a ditch immediately above where the pillars are being removed. Work has been suspended for some time, pending a suit in court to have the gas company lay their pipes in such a manner as not to endanger the lives of the men working in the mine, which would be accomplished by lifting the pipes from the ditch to the surface.

CHARTIERS VALLEY RAILROAD.

Glendale.

Located at Mansfield. Owned and operated by Gregg Brothers. The firm employs twenty-five miners, two drivers, and three day men. The mine is worked by single-entry. Ventilated by a small furnace. I found the mine in pretty good order.

Mansfield, No. 2.

Operated by the Mansfield Coal and Coke Company. This is a large mine; two hundred and thirty miners are employed, with the usual number of day men. The output is about eight hundred tons per day. The mine is worked on the single entry system. Fire-damp is generated in this mine to some extent; I found it in small quantities in several places in the mine. I was informed that the workings were not examined with a safety-lamp, as required by law, before the men proceeded to their working-places in the morning. I notified the superintendent to employ a fire-boss forthwith, and examine the mine every morning before working hours. The managers expressed a desire to comply with the law, and to make any necessary improvements required by the new mining law, in order to secure the safety of their men. The roadways are kept in good condition, and the propping of the working-places is well attended to. The ventilation is by a large furnace capable of producing thirty thousand cubic feet of air-current per minute. B. B. McDowal is mine-boss.

Boden.

Operated by the Chartiers Valley Coal and Coke Company. The mine is worked by single-entry. Number of miners employed, seventy. Output about three hundred and fifty tons per day. Fire-damp is given off more or less, as a rule very little is generated. The mine is ventilated by furnace power. Quantity of air in circulation, fourteen thousand cubic feet per minute. The mine is in pretty good working order.

Glass House.

Operated by Glass House Coal Company. The mine is nearly exhausted. A new opening is being made, which will shorten the route of transporta-

tion to the pit mouth very considerably; they were, at the time of my visit, mining the entry pillars, a great part being lost, on account of the impracticability of ventilation, caused by the unsystematical way in which the mine was laid off. Ventilated by furnace. Quantity of air at inlet and outlet, about fifteen thousand cubic feet per minute, very little of which was circulating where the men were working. The drainage of the mine was likewise very defective.

Summer Hill.

Owned and operated by Frank Armstrong. I visited the mine three times. The date of my first visit was September 16; at that date I found the mine in a bad condition, as regards the ventilation. The quantity of air passing at the inlet and outlet was sufficient to keep the workings in a healthy condition, but the distribution of the air-current through the working-places was very defective, some of the headings being driven a distance of one hundred and fifty yards in advance of the air-current. In one of the headings so driven, I found a dangerous accumulation of fire-damp, amounting to fifteen thousand cubic feet, which had been standing there some five or six weeks without any attempt of the mine-boss to remove the same. It was almost a miracle the gas had not been exploded, as the entrance to the entry was not fenced off, but was open and free for any person to enter therein, and such was the carelessness of the mine-boss in regard to the matter that he had boasted he was not afraid of gas, as he had an entry full for a distance of seventy yards. It is but fair to state that Mr. Armstrong knew nothing of the condition of the mine, he not being a practical miner himself, and when informed by me of its condition, he at once ordered a cessation of work until the gas was removed, and the mine made safe. At his request, I took charge of the matter, and directed the arrangements by which the gas was removed, which was done in about eighteen hours from the time I discovered it. The mining-boss has been changed, and the mine is now under good management, and in all respects is in good condition.

Bower Hill.

This mine changed hands some six months ago, and has not been in operation since that time. It was formerly owned by A. J. Shulte, but is now owned by the Imperial Coal Company.

Bridgeville.

Owned and operated by A. J. Shulte. Worked on the single and double-entry systems. Employs eighty-five miners. Ventilation natural. I found the mine to be in good working order. C. P. Mayer is mine-boss.

Hastings.

Operated by the Pennsylvania Coal Company. Number of miners employed, fifty. Worked on the single-entry system. Ventilated by furnace

power. Quantity of air passing at inlet, ten thousand five hundred cubic feet per minute. The mine is in an average condition. John Neish is mine-boss.

TOM'S RUN MINES.

Pioneer.

Operated by the Youngstown and Chicago Coal Company. Worked by single and double-entry. Ventilated, at the time of my visit, by natural means. Quantity of air passing at inlet, two thousand one hundred and sixty cubic feet per minute, which was inadequate for the number of men employed. A furnace was being built which, when completed, will give ample ventilation. Reuben Street is mine-boss.

Smith.

Operated by Smith & Co. In this mine I found a small accumulation of standing gas at the face of one of the entries, in dangerous proximity to where a man and boy were working. All parties, the mine-boss inclusive, seemed to treat the matter with little concern, although there was gas sufficient to have caused serious personal injury, and perhaps loss of life, if a naked light had come in contact with it. I directed that the man and boy be withdrawn from the reach of danger, and that brattice be erected and the gas removed. The mine is laid off on the double-entry system. Ventilated by steam jet. Quantity of air passing, four thousand nine hundred and fifty cubic feet per minute.

Tom's Run.

Operated by the Chartiers & Cleveland Coal Company. Worked by both double and single-entry. Number of miners employed, about sixty. The mine is ventilated by furnace power. Amount of air-current passing at the inlet, nine thousand two hundred and eighty cubic feet per minute. At the time of my visit the mine was in good condition.

Keightly.

Operated by the Fountain Hill Mining Company. This is a new mine not very extensively operated. Ventilated by a small temporary furnace. The mine was, at the time of my visit, in fair working order.

Federal Spring.

Operated by W. J. Steen. Worked on the single-entry system. Ventilation natural. Quantity of air passing at inlet, five thousand six hundred cubic feet per minute. The distribution of air-current through the working-places was somewhat defective; otherwise the mine was in good condition.

Clark.

Operated by Linn & Cooper. This is a new mine, employing about twenty

miners. Output about eight hundred bushels per day. Ventilation natural, and very defective, for want of proper arrangements to conduct the air-current around the working-places. Amount of air at inlet, six thousand cubic feet per minute.

PAINTER'S RUN MINES.

Essen.

Operated by Sanford & Co. Worked on the double-entry system. This mine is ventilated by a six-foot Murphy fan. Quantity of air passing at the outlet, twenty-two thousand five hundred and forty cubic feet per minute, but only about one half this amount was passing through the working-places, the greater portion of the air being allowed to escape before reaching the miners, on account of the doors and brattices being imperfectly constructed; if my instructions are carried into effect, this great waste will be avoided in the future, and the mine will be one of a model character, as in all other respects it was found to be in good condition.

Beadling.

Operated by Beadling Brothers. This is a slope mine, the coal bed lying below water level. The mine is ventilated by exhaust steam. Quantity of air passing at outlet, two thousand one hundred and sixty feet per minute, which was deficient in quantity for the number of men employed; in other respects no complaints could be made.

MONTOUR'S RUN MINES.

Imperial.

Owned and operated by the Imperial Coal Company. This mine is worked by single-entry, with the exception of the main tunnel, which is double. Ventilated by furnace power. Amount of air passing at outlet, eighteen thousand cubic feet per minute, but the miners in some parts of the mine suffered for the want of pure air, on account of proper cut-throughs not being made in the room pillars. I left instructions to comply with the law in this respect. The quantity of air in circulation is ample for the number of men employed, if properly distributed through the working-places. The tail-rope system of haulage is in use at this mine.

Beach Cliff.

Operated by Imperial Coal Company. This mine is also worked by single entry. Ventilated by a large furnace. Quantity of air-current passing through the mine, fourteen thousand six hundred cubic feet per minute. After making a thorough examination of the mine, I found the same to be in good working order.

MINES WEST OF THE ALLEGHENY RIVER.

Watson.

Operated by Watson Brothers. This is a shaft opening, three hundred

and sixty feet deep. Number of miners employed, seventeen. The system of long wall work is in operation at this mine. The coal is undermined with coal-cutting machines. As yet there is only one opening, they not having reached the point where they intend to sink the second shaft. Ventilation is produced by a fan and steam jet. The airways were in poor condition. Quantity of air passing, four thousand cubic feet per minute.

Glenshaw.

Located on the P. & W. R. R. Operated by Samuel Spencer & Co. This mine has done very little work for some time; is in pretty good working order.

Belleview, Tarentum, and Natrona.

Neither of the three last-named mines employ a sufficient number of men to bring them under the law at the present time.

YOUGHIOGHENY RIVER MINES.

Blythe, No. 1.

Owned and operated by the Lake Erie Gas Coal Company. Worked on the double-entry system. The mine is laid off, but the ventilation was somewhat defective for the want of proper cut-throughs in the room pillars, and the furnace in use being too contracted to give the amount of ventilation required; a larger furnace is about to be erected, which will bring the amount of air-current up to the requirements of the mine law. The number of miners employed is one hundred and fifty. Amount of air passing, about eleven thousand cubic feet per minute. The mine has been in operation very little for the last two months.

Blythe, No. 2.

Operated by the Lake Erie Gas Coal Company. This is a new opening, employing sixty miners. The ventilating apparatus is of a temporary kind, the furnace not being as yet erected. The mine is well and systematically laid off, and when the furnace is in position will be well ventilated.

Ocean, No. 2.

Operated by the Ocean Coal Company. This is an extensive mine; two hundred and fifty miners are employed. Output about one thousand tons per day. Worked on the double-entry system; is ventilated by a large furnace capable of producing thirty thousand cubic feet of air per minute. The mine is well and skillfully laid off, and was found to be in pretty good working condition. John Thomas is the mine-boss.

Ocean, Nos. 3 and 4.

These mines are owned and operated by the Ocean Coal Company. They are worked on the double-entry system. Ventilated by a temporary furnace. They are driving to the point where a large furnace will be per-

manently located. They are both new openings, and were, at the time of my last visit, in fair working order.

Buena Vista.

Operated by the South-West Coal Company. Ventilated by a furnace, which is too small for the amount of air required. The superintendent informed me of their intention to erect a larger furnace in a more suitable location. The mine is well laid off on the double-entry system. Amount of air passing at outlet, eight thousand cubic feet per minute.

Lake Shore.

Operated by the Lake Shore Gas Coal Company. This mine has recently been opened up by the side of an old abandoned mine; employs forty-five miners. I found the mine in poor condition, not having a sufficient amount of ventilation, and what little there was not being properly circulated through the working-places. Amount of air passing, about two thousand five hundred cubic feet per minute. I left instructions that the number of men be reduced, or that artificial means be employed to produce a sufficient flow of air-current through the workings.

Cornell & Werling.

Operated by the heirs of William H. Brown. This is an extensive mine, one hundred and fifty miners being employed. Output about twelve thousand bushels per day. Worked on the single-entry system. The coal is hauled from the working-places to the main parting by mules, from whence it is hauled to the pit mouth, a distance of one thousand four hundred yards, by a stationary engine and wire line. Ventilation produced by a large furnace. Quantity of air-current passing, eighteen thousand feet per minute. The mine is well cared for, and was found to be in excellent condition. Frank Cornell is the mine boss.

Eagle's Nest.

This is an old mine nearly exhausted; only a few men are employed; was found to be in good condition.

James O'Neil.

Operated by James O'Neil. Worked by single entry. Ventilation is produced by exhaust steam. Amount of air in circulation, four thousand three hundred cubic feet per minute. The mine is in a reasonable condition.

Penny.

Operated by Lynch & Co. Worked by single-entry. Ventilation natural. This is an old mine, having been in operation nearly forty years; seventy miners are employed. Output about seven thousand bushels per day. The mine is in good working condition. George Crouch is the mine-boss.

MINES ON THE MONONGAHELA RIVER.

Pool, No. 3.

Most of the river mines have been idle, on account of a strike with the miners, nearly the whole of the time since my appointment to office, so that I have not had an opportunity of seeing but few of these mines while in operation.

Milesville.

Operated by Robert Jenkins. Ventilated by furnace power. Quantity of air passing at inlet, about five thousand cubic feet per minute, which was insufficient for the number of men employed. Mine worked by single-entry.

Rankin.

Operated by John Perry & Co. The present operators have recently leased this property, and were, at the time of my visit, engaged in repairing the screens, preparatory to working the mine, which had been idle for some time.

Old Eagle.

Operated by William H. Brown's heirs. This is an extensive mine worked both by single and double-entry. Ventilated by furnace power. Amount of air passing at inlet, seven thousand feet per minute. This mine generates fire-damp rather freely; was found in very fair condition.

Winona.

This is an old mine nearly exhausted; the number of miners employed averages about twenty.

POOL, No. 2.

Upper Walton, Nos. 1 and 2.

No. 2 is a new mine laid off on the double-entry system, ventilated at the present time by natural means. They can employ, when running, two hundred miners. A furnace will be built in the near future, after which the mine will be well ventilated. No. 1 is an old mine nearly exhausted. These mines are owned and operated by Jos. Walton & Co., and were found in fair working order.

Jones.

Operated by George Jones & Co. Worked by single-entry. Number of miners employed, one hundred. Output about seven thousand bushels per day. Ventilated by furnace. Quantity of air in circulation, fifteen thousand cubic feet per minute. Mine in good order.

Lower Walton.

Operated by Joseph Walton. Employs one hundred and eighty miners.

Output sixteen thousand bushels per day. Ventilation natural; the ventilation is good, considering that no artificial methods are employed, which can be accounted for from the fact that all the headings are driven to the surface, making a separate intake for each entry; the mine was, at the time of my visit, in good condition.

West Elizabeth.

Operated by J. N. O'Neil & Co. Worked by single-entry. Ventilation natural, which gives a fair amount of air-current, on account of there being a large number of inlets and outlets. Found the mine to be in fair condition.

Harvey O'Neil.

Operated by Harvey and James O'Neil. Employs eighty miners. Output, six thousand bushels per day. Ventilation, natural. This mine has been in operation about two years, but has not shipped much coal during the whole of that time, on account of strikes of the miners. The ventilation was somewhat defective, otherwise the mine was in good condition.

Horner & Roberts, No. 3.

Operated by Horner & Roberts. This is a very extensive mine; two hundred and fifty miners are employed. Output about fifteen thousand bushels per day. The cars are hauled from the main parting in the mines to the pit mouth by means of a stationary engine and wire line, from thence to the tipple, a distance of two miles, by a locomotive. This mine is worked on the double-entry system, ventilated by furnace power, quantity of air passing through the workings, thirty-one thousand two hundred and forty cubic feet per minute. Fire-damp is generated very freely. The mine is well and skillfully managed, and is, in all respects, in good condition.

Horner & Roberts, No. 4.

Operated by Horner & Roberts. This is a new opening. Eighty miners are employed. Output about six thousand bushels per day. Worked by double-entry. Ventilated by furnace power. Seven thousand two hundred cubic feet of air-current per minute in circulation. The mine was found to be in good condition.

Lovedale.

Operated by John A. Wood & Son. One hundred and fifty miners are employed. Worked on the double-entry system. Ventilated by furnace and exhaust steam. Quantity of air passing at inlet, about seventeen thousand cubic feet per minute. The mine, when visited, was in very fair condition.

Bellevue.

Operated by Gumbert & Huey. Ventilation natural. Amount of air passing, thirteen thousand eight hundred and fifty feet per minute. The mine, when visited, was in reasonable condition.

Robbins.

Operated by William Robbins. It is worked on the single entry system. Is ventilated by furnace and exhaust steam. Was found in fair condition.

Blackburn.

Operated by Foster, Clark & Co. They employ two hundred miners, four trapper boys, and twelve day men. Output, fifteen thousand bushels per day. Ventilated by furnace and exhaust steam. Quantity of air passing, twenty-two thousand feet per minute. Is worked by single-entry. Was found in fair condition.

Pine Run, Nos. 1 and 2.

Operated by O'Neill, Lynn & Co. Two hundred and twenty miners are employed at these mines. Output about sixteen thousand bushels per day. Worked on the double entry system. Ventilated by furnace power. Quantity of air passing, thirty-six thousand and forty feet per minute. Both mines are ventilated by the same furnace, and are among the best ventilated mines in the district, and were in good condition in all other respects.

Rock Run.

Operated by William Snodgrass. Employs about one hundred miners. Worked by single-entry. Ventilation natural. The quantity of air in circulation was below the requirements. I directed that they take steps to increase the flow of air through the workings. The manager promised to do so by erecting a furnace.

Allequippa.

Operated by Bailey, Wilson & Co. Number of miners employed, two hundred. Output, sixteen thousand bushels per day. Ventilated by furnace power. Quantity of air passing, thirty-three thousand four hundred and forty cubic feet per minute. The mine is well ventilated, and is in all respects in good condition.

Camden.

Operated by Addison Lysle. This mine is worked by single-entry, with the exception of the main entry, which is driven double. Is ventilated by a large furnace, producing upward of twenty thousand feet of air-current per minute. The mine was found in good condition. Number of miners employed, two hundred. Output, eighteen thousand bushels per day.

Amity.

Operated by J. C. Risher. Worked by single-entry. Ventilated by fur-

nace power. Number of miners employed, one hundred and fifty. Output, about fifteen thousand bushels per day. The mine is well ventilated, and in all other respects is kept in good condition.

Stone.

Operated by Joseph Stone & Co. Is ventilated by furnace power, producing twenty thousand feet of air-current per minute. Number of miners employed, one hundred and fifty. Output, about fourteen thousand bushels per day.

POOL, No. 1.

Green Springs.

Owned and operated by Thomas Fawcett. Ventilation is produced by exhaust steam from a pump used to drain the mine of water. Number of miners employed, about one hundred. Output, about eleven thousand bushels per day.

Bellwood.

Operated by Munshall Bros. Worked by single entry. Ventilation rather defective. An air-shaft is about to be sunk, and a furnace located there, after which the air-current will be good; in other respects, the mine is in good order.

Hays Street Run, Nos. 2 and 3.

Operated by the heirs of James Hays, deceased. This is quite an extensive mine. About two hundred miners are employed when running, and the output is about fifteen thousand bushels per day. The mine has not been in operation for the past four months. Ventilation, natural.

Risher.

Operated by I. D. Risher. Ventilated by a furnace. Worked by single-entry. Number of miners employed, about one hundred and thirty. The mine was found to be in good condition. John Brown is the mine-boss.

Walton.

Owned and operated by Honorable Joseph Walton. Is worked by single and double entry. Most of the entries are driven to the outcrop, so that a fair amount of ventilation is obtained without any artificial means being used. About two hundred miners are employed, and the output is about sixteen thousand bushels per day. The mine has been idle for some time, through the miners being on a strike.

Beck's Run.

Owned by the heirs of James Hays, deceased. Worked on the single-entry system. Ventilation is produced by furnace power. The number of miners employed averages about one hundred and eighty. Output about twelve thousand bushels of lump coal per day. Quantity of air in circulation, twenty-eight thousand feet per minute. Mine in good condition.

Jones & Laughlin.

Operated by Jones & Laughlin. This mine has been shut down for over six months, on account of natural gas having been introduced into the mills where the product of this mine was formerly consumed.

Ormsby.

Operated by the Birmingham Coal Company. This is a very extensive mine. Employed, at the time of my visit, one hundred and thirty miners. Output about three hundred tons per day. This mine is operated on the double-entry system. The output has been greatly diminished of late, on account of natural gas taking the place of coal in those places where the product of the mine was formerly shipped. One division of the mine is shut down for the time being. Ventilated by furnace and fan. This mine generates fire-damp rather freely. The general condition of the mine was good when last visited.

Castle Shannon.

Operated by the Castle Shannon Coal and Railroad Company. They employ one hundred and twenty miners and nine day men. The output is about two hundred tons per day, which is shipped to Pittsburgh, a distance of four miles, over the Castle Shannon railroad. Used principally for domestic purposes. Ventilation natural. Quantity of air passing at the inlets, which are three in number, was seventeen thousand and fifty cubic feet per minute. The mine is worked by single-entry, and was found in good condition. This mine is not running more than one half time, natural gas having taken their market.

DESCRIPTION OF FATAL ACCIDENTS.

A boy named Arthur Sassner was killed while working in the Imperial mine, on June 29. I visited the mine on August 26, the first opportunity I had after my appointment to office, at which time I found the room wherein the boy was killed in just the same condition as left when the accident occurred. The boy was mining coal with his father, and through the father's neglect to take down the over slate, or set sufficient props to secure the same from falling, a piece of slate, one foot deep, two feet broad, and six feet in length, fell on top of the boy, causing instant death. The accident would not have occurred if the father had used the proper precaution to keep his room in a safe condition, as the room was twenty-one feet wide, having three feet of slate bare across without any prop under it; whereas, there should have been four to have made the place safe to work in; there were plenty of preps in the room at the time, if the man had availed himself of the use of the same. The boy's age was fourteen years.

Ocean, No. 2.

A fatal accident occurred at this mine on September 1, to a man named Barney Lindbowy. It appears that the man went to his work on the

morning of the accident somewhat earlier than he was in the habit of going, for the purpose of taking down a quantity of over-slate, which he left hanging across the room the night before. If he had taken the slate down before doing other work, all would have been well; but, perhaps, thinking the slate would stand for a while longer, he commenced to wedge down a piece of coal, as I suppose for the purpose of loading a car which he had partly loaded the day before, and while doing so a piece of slate nine inches deep, three feet wide, and four feet in length fell on top of him, causing instant death. He was a single man, aged twenty-eight years, having had very little experience in the mining of coal.

A second accident occurred at this mine on the 11th of the same month, by which a man named Thomas Jones lost his life. Said Thomas Jones had fired a blast in the coal the day before when ceasing work, which had the effect of breaking the coal without dislodging the same, and it appears that when the man and his son went to work on the morning of the accident, and saw the condition of things, they at once commenced to undermine the broken coal without first having taken any steps to secure it by props or sprags, when the whole mass of broken coal and overlying slate came down, completely burying the man, and causing instant death. The deceased was an old, experienced miner, and was spoken of as being a careful workman, and it is hard to understand why he risked his life in such a careless manner on this occasion, as it would have been almost a miracle if an accident had not occurred under such circumstances; aged fifty-five years; family all grown up.

Laurel Hill.

An accident occurred at this mine on September 15, which proved fatal to a single young man named Peter Carrol, aged twenty-two years, by a piece of falling slate, averaging nine inches deep, two feet four inches wide, and four feet long. The man had fired a blast which left the slate without support, and although warned of the danger by another miner working in the next room, the man continued to load the coal from beneath the dangerous slate without taking any steps to take it down or secure it with props; the result was the slate fell, as above stated, causing instant death.

Summer Hill.

An accident occurred at this mine on November 18, whereby a man named Henry Kellund, aged forty-two years, received fatal injuries, from which he died five days afterward. The man was riding on the coupling between the trip of full cars, when he was caught and crushed between the top of the full car and the roof. Although forbidden by the rules of the mines, the dangerous practice of the miners riding on the trips of cars is largely indulged in at some of the mines. I have instructed the mine-bosses to use stringent measures to prevent the same in the future.

RULES AND REGULATIONS DEFINING THE DUTIES OF PERSONS EMPLOYED IN OR ABOUT THESE MINES.

Duties of Superintendent.

1. He shall comply strictly with the requirements of the first, second, third, fourth, and fifth sections of the mining law, and perform such other duties as the said act requires of him with punctuality.

2. He shall, to the best of his ability, enforce the observance of the said mining law and special rules.

3. He shall see that all necessary timbers, supplies, and other material for the safe and effectual running of the mine are supplied when ordered by the mine-boss or outside boss.

Duties of the Mine-Boss.

1. It shall be the duty of the mine-boss to attend to the mine every day, when the mine is in actual course of working.

2. He shall be at the mine at the time appointed for commencing work.

3. It shall be his duty to direct and supervise the whole of the inside work of the mine; to instruct all workmen and boys in their several duties.

4. He must be careful to carry out all the instructions set forth in the mining law; also, to see that the regulations prescribed for each class of workmen under his charge are carried out in the strictest manner possible, and see that any deviations from or infringements of any of them are at once adjusted.

5. He shall take charge of all ventilating appliances, and shall see that the power employed for producing the ventilating current is at all times in compliance with the law.

6. He shall practice due economy in all stores supplied for the mine, and shall make immediate complaint if the timber and other supplies do not reach the mine as required.

7. To keep all entries, break-throughs, and rooms as straight as possible, and pillars of a uniform and sufficient thickness, and when necessary he shall see that sights or lines are furnished to the workmen for the purpose.

8. To have all stoppings along airways properly built and kept free from leaks.

8. To provide that all main headings used as haulage roads shall have excavated in them sufficient man-holes as the law directs.

10. That all main air-courses have an area of forty square feet, and more when required, and cross-headings thirty-five square feet when practicable, that they may be as near square as possible, and that at all times every ventilating passage shall be kept free from impediments.

11. To order immediately the securing of dangerous places, and especi-

ally those in actual course of working, in the face of working rooms, ribs, and entries, all loose and dangerous slate to be taken down, and the roof and sides otherwise made secure by timbering.

12. To see that all doors placed for the guidance of air-currents are so hung that they will close of themselves, unless willfully propped open, and that no door is left open longer than is necessary for the trip to pass through.

13. To see that roads in use are kept properly cleaned, drained, and secure for men, boys, and mules passing to and fro.

14. To see that horses and mules under his charge are not over-worked or abused by the drivers, nor driven against grades without occasional rests, and that when drivers attend to the feeding of the mules, they shall be at the stables in time in the morning before starting work, to give the mules ample time to take or eat food, etc.

15. He shall not allow doorkeepers to leave their doors under any pretense whatever.

16. Each doorkeeper shall be provided with a refuge hole, affording him security from the cars as they pass to and fro.

17. When the road grade necessitates sprags or brakes to be used to keep the cars under control of the driver, the entry at the place where the sprags or brakes are used to be wide enough to allow the driver to pass his trips and keep clear of the cars.

18. He shall provide that all miners undermine the coal properly before blasting it down, and see that the miners set sprags under the coal where necessary for safety while so undermining, and that no coal or material is lost by the improper drawing of pillars.

19. When any gas is observed in any part of the mine, it shall be his duty to see that all such gas is reported daily on the reports until it is removed.

20. When the furnace has been put out, it must only be lighted again in the presence of the pit-boss, or in the presence of his assistant, acting under his instructions.

21. Where fan ventilation is used, in case of accident to the machinery or to the fan itself, whereby the ventilation of the mine would be interrupted, the men shall be immediately withdrawn from the mine, and not be allowed to return to their work until the mine has been thoroughly examined.

22. To measure the effectual air-current properly, and report the measurements to the mine inspector, as required by the fifth section of the mining law.

23. He shall see that props and caps, cut square at both ends and of suitable lengths, are supplied to the miners at all times, and that they are

properly used where needed, and not in any careless manner whatever lost or wasted.

24. He shall see that proper cut throughs are made in the room, pillars at such distance apart as the mine inspector may direct, and that the mine is kept free from explosive or other noxious gases, and that the necessary precautions as set forth in the law are taken when driving places unto or toward old workings.

25. He shall see that all dangerous places are properly fenced off, all across and danger signal boards so hung on such fencing that they may be plainly seen.

26. For the purpose of fulfilling the requirements of the mining law and special rules, the pit-boss or his assistant or assistants shall visit every working-place during working hours at least once every alternate day; he shall also travel all air roads and examine all the accessible openings to old workings as often as practicable to insure their safety.

27. The mine-boss shall cause a blackboard of suitable form and size to be hung in some conspicuous place, near the entrance of the mine, whereon a copy of the mining law and special rules shall be placed.

28. He shall also cause to be constructed a blackboard or slate large enough, and shall have it placed in some building near the entrance of the mine, upon which shall be the numbers used by the miners, and space sufficient to each number, so that the miners can write plainly the quantity of props, their length and size, number of caps and other timbers they require, with the time and date of the order, &c.

29. Whenever he cannot personally carry out the provisions of the mining law, so far as they apply to him, the superintendent shall authorize him to employ a competent person or persons to act as his assistant or assistants, who shall be subject to his orders.

30. He shall each day enter a report of the condition of the mine in a book kept for that purpose, defining clearly any danger that may arise, the nature of the danger, the locality of the same, &c.

Duties of the Fire Boss.

31. He shall, to the best of his ability, carry into effect all the requirements of the mining law, general and special rules; also carry out the instructions of the mine-boss.

32. To go into the mine before the men, and, before proceeding to examine the same, he shall visit the ventilating machinery or furnace, and after seeing that all is right, he shall proceed to examine the workings, and should he detect gas of an explosive nature or find any place rendered dangerous from any other cause whatever, he shall fence off all entrances leading to such places, on which he must either place a danger board or write intelligently a warning.

33. He shall at all times make such examinations with a safety-lamp, and no other lamp shall be used by him during such examinations, and after finding the mine or such parts of the mine in a safe condition for the workmen to enter thereto, he shall come out to the appointed station and instruct the men and boys to proceed to their work; but in no case shall he allow any person to enter or remain in any part of the mine through which a dangerous accumulation of gas, being removed from any other part of the mine, would have to pass in the ventilating current.

34. He shall brattice all places effectually that are driven in advance of the air-current, especially entries, opening up new workings. He shall also keep good all doors and brattices.

35. He shall frequently examine the edges and accessible parts of new falls and old gobs and air-courses.

36. He shall not allow any door to be fastened or propped back on its hinges, and shall so hang every door that it will fall to and close.

37. He shall immediately withdraw any workmen from any place rendered dangerous, and have the place fenced off until the danger is removed, and should the danger arise on account of the presence of gas, the same to be removed immediately.

38. He shall make a written report out daily, stating in detail the dangers that may have occurred, and showing if the general condition of the mine is safe or otherwise.

39. To see that every safety-lamp in use is securely locked and otherwise in good condition.

40. To report at once any violation of the mining law, general or special rules, to the mine-boss.

41. He shall, under instructions from the mine-boss, at some convenient and safe point at the entrance to the mine or in the main in-take airway near to the entrance, mark off a station beyond which no persons shall pass when going to their work until the mine is reported by him to be safe, and proper notice shall be hung at said station warning all persons, not to proceed until such report has been made, and it shall be the duty of the mine-boss to see that any persons disregarding said notices are dealt with according to law.

Duties of the Miners.

42. Each workman, when engaged, shall have his attention directed to the general and special rules, and especially those pertaining to his own safety, and if unable to read, the rules shall be explained to him, and the necessity of strict attention to them.

43. He shall examine his working-place every morning, and take down all loose and dangerous slate, and otherwise secure the sides and roof by properly timbering the same before commencing to dig or load coal, and he

shall at all times be very careful to keep his working place in a safe condition during working hours.

44. Should he at any time find his place becoming dangerous, either from gas or roof, or from any unusual condition which may arise, he shall at once cease working, and inform the mine-boss or his assistants of such danger, and before leaving such place to search for the boss he shall place some plain warning at the entrance thereto, to prevent others from entering into the danger.

45. It shall be the duty of every miner to undermine his coal properly before blasting it down, and to set sufficient sprags under the coal while undermining to secure it from falling, and to use every precaution toward sending out his coal free from sulphur, slate, rock, or other impurities as far as possible.

46. He shall use great caution in the care and handling of his powder, and when making a cartridge he shall not keep his lamp on his head nor have a lighted pipe or cigar in his mouth; he shall place his lamp at least four feet from him and at a point at which the air would carry a spark away from him.

47. When charging a hole for a blast, if his cartridge sticks he must remove it carefully and reduce its size or enlarge the hole so that he may push it in easily; he must not ram or force the cartridge with a drill, and when firing a shot with a patent or other squib, he must not break off or bend the end of the squib, or light it at any part other than the extreme end, or do any other act that would tend to cause the shot to go off before he could reach a place of safety.

48. In driving cross-cuts through pillars, before firing his shot, the miner must give ample warning to the workmen in the room toward which he is driving so that they may find a place of safety.

49. He must be careful not to return to his working-place too soon when a shot seems to have missed fire.

50. After a shot has been fired, the miner must exercise great care in examining the roof and coal, and securing them safely before resuming work.

51. The miners shall not go into any old or abandoned parts of the mine, or into any other place which is not in actual course of working, without permission from the mine-boss or his assistant, nor shall he, under any circumstances, travel to or from his work, except by the traveling way arranged for that purpose.

52. When places are liable to generate sudden volumes of fire-damp, no miner shall be allowed to fire shots, except under the supervision and with the consent of the fire-boss in charge of the mine, nor shall the miner go into any place known to generate explosive or other noxious gases before the same has been examined by the fire-boss, and reported by him to be safe.

53. The miner, when in want of props, caps, or other timbers, shall give his order at least twenty-four hours before needing them, and in no case shall he allow himself to run out of props and caps before ordering a new supply.

54. The miners shall at all times promptly obey and carry into effect all orders given by the mine-boss or his assistants.

Duties of Drivers.

55. It shall be the duty of the driver to take proper care of his horse or mule, and to see that it is properly fed and supplied with water when outside of the stable, and he must not abuse it or allow any other person to do so.

56. When he has occasion to leave it, he must be careful to see that it is left in a safe place, secure from runaway cars or other dangers.

57. He shall drive his animal carefully, and when ascending steep grades allow it to rest frequently.

58. No person but the driver shall be allowed to take the horse or mule to or from the stable, and while going or returning he must not drive the animal faster than a walk.

59. The driver must take great care while making his trips down grades to have the brakes or sprags so adjusted that he can keep the cars under control and prevent them from running on to himself or mule.

60. Any driver who injures a mule through carelessness, or any other unaccountable way, will be held responsible therefor.

61. The driver shall, under no pretense whatever, enter into places not in actual course of working, unless it is made known to him by the mine-boss or his assistants that such places are in a safe condition, nor shall he, under any circumstances, use a naked light along or into places known to generate or contain fire-damp.

62. He shall, at the end of each shift, draw all cars from out dangerous places, and any time during the shift, if the conditions require, and at no time shall he leave any cars standing where they will obstruct the ventilating current, nor shall he prop or leave open a ventilation door longer than is necessary for him to take the trip through.

Duties of Trip Riders or Runners.

63. He shall exercise great care in seeing that all hitchings are safe for use, and he shall be careful to see that all the trip is coupled before starting.

64. He shall not allow any person to ring or interfere with the signals either at starting nor at any point between the landings.

65. He shall not allow any person, under any circumstances whatever, to

ride either in or out on the trips, and shall, at once, report any person or persons attempting to do so to the mine-boss.

66. And should he, at any time, see any defect in the rope, link, or chain, he shall retain the trip until such defect is put right.

Duties of Engineers.

67. It shall be the duty of the engineer to keep a careful watch over his engine, machinery, pumps, boilers, &c., to see that the pumps and boilers are properly supplied with water, cleaned and inspected at proper intervals, and that the pressure does not exceed at any time the limit allowed by the superintendent.

68. He shall, as often as it is necessary, examine the engine, rope, drum roll, and horns or flanges sustaining the rope; he must examine from time to time during the day all safety valves, steam gauges, shut-off valves, and water floats, seeing that they are all kept free and in good condition, and in case of any defect, the same shall at once be reported to the superintendent, always provided that where men are lowered into or raised out of the mine, the ropes, machinery, safety catches, &c., are inspected once each twenty-four hours by a competent person as set forth in the third section of the mining law.

69. He shall make himself acquainted with the signal codes as used, and shall have the same posted in the engine-house.

70. He shall not allow any unauthorized person to enter the engine-house, neither shall he allow any person to handle or run the engine without the sanction of the superintendent.

71. When men or boys are being raised or lowered, he shall take special precautions to keep the engine well under control.

72. He must see that the boilers are kept in constant repair, and he must examine the boilers internally, also all mountings, as often as their safe and proper maintaining may require.

73. The locomotive engineer must keep a strict look-out ahead of his engine, and always sound the whistle or alarm bell frequently, especially when coming near the partings or landings, and he must, at all times, be very careful not to exceed the speed allowed by the mine-boss or superintendent. He must not allow any person to ride on the engine, or on the full or empty trips, with the exception of his attendants.

Duties of Fan Engineer.

74. The engineer in charge of any ventilating fan must keep it running at such speed as the mine-boss directs, and on no account shall he slacken its speed except by proper instruction from the mine-boss, which shall be given in writing. If repairs to the fan or machinery become necessary, he must give timely notice to the mine-boss, and await his instructions before

stopping it. He shall also examine, as often as it is necessary, all the fan bearings, stays, and other parts, and see that they are all kept in proper working order.

Duties of Outside Foreman.

75. It shall be the duty of the outside foreman generally to direct and supervise all the outside work of the colliery, to instruct the workmen in their several duties, and to see that all the rules set forth for their guidance are obeyed.

76. To see that hoisting ropes are not used when in a dangerous condition, and are preserved from unnecessary exposure, and greased at frequent intervals with suitable oils, which he shall be provided with for that purpose.

77. That all new ropes are properly taken care of until put into use, but in no case shall he tar such ropes until they have been used, lest defects should thereby be concealed.

78. He shall see that mine props, caps, and other timbers are delivered at the mine mouth handy for loading on cars, and that mine rails and other materials are supplied as needed. At the same time, he shall exercise due economy in the use of all supplies and materials, and allow no waste of the same; all outside workmen shall be under his control; he shall also have all tools and materials under his charge.

Duties of the Weighmaster.

79. He shall have general charge of the dumpers, and see that all coal by them is properly handled, and all unnecessary breakage avoided.

80. He shall see that the coal is received from the miner in a proper condition, free from sulphur, slate, rock, or other unmerchantable material as far as practicable.

81. He shall weigh or supervise the weighing or measuring of all coal, and see that just weight is taken in all cases; he shall give due and prompt attention to all inquiries from miners after lost cars.

Furnace Ventilation.

82. The ventilating furnace must be attended to with regularity, and in case the person attending to the furnace should fall sick or should he be likely to be off work for any other reason whatever, he must, without fail, give early notice to the mine-boss to enable him to provide a substitute for his place.

83. The furnace shall at all times have a clear, brisk fire; instructions as to the thickness of the fire, &c., shall be set forth by the mining-boss; the fire must not be smothered with coal or slack, nor shall the furnaceman allow the ashes to accumulate on or under the bars. They shall be cooled as generated and removed.

84. The furnaceman must at all times promptly obey the instructions of the mine-boss or his assistants.

Duty of the Barn-Boss.

85. It shall be the duty of the barn-boss or stableman to take charge of the mine stock generally, and to see that all the animals are fed, watered, and attended to in a proper manner.

86. He shall examine the animals daily as they are brought in from work, and report any hurt or damage done to the same.

87. He shall not allow any animal to be ill-treated or overworked, or to leave the stable when unfit for work, and he shall report such to the mine-boss immediately.

SHAFTS AND SLOPES.

Duties of Tankers or Hookers on.

88. The tanker or hooker-on at the bottom of any slope shall be very careful to see that the cars are properly coupled to the rope or chain, and that the safety catch or other device is properly attached to the cars before giving the signal to the engineman, and he shall not travel in the slope or allow any other person to do so while the cars are in motion or during working hours, and he must not ride in the slope either on the full or empty cars, nor allow any other person to do so, and if any person should interfere with the signals, or attempt to ride on the cars, he must immediately inform the mine-boss of the same.

89. The tanker or hooker-on at the bottom of any shaft shall not attempt to withdraw the car until the cage comes to rest, and when putting the full car on the cage, he must be very careful to see that the springs or catches are properly adjusted so as to keep the car in its proper place before giving the signal to the engineman.

90. He shall, at all times, be at his post when men and boys are ascending or descending, and he shall not allow more men or boys to ascend at one time than the number allowed by law, and he shall not allow any person to interfere with the signals, and should any persons attempt to do so or to get on the cage against his instructions, he shall immediately inform the mine-boss of the same.

91. He shall not allow any tools of any kind to be placed on the cage when persons are ascending or descending the shaft, and he shall immediately inform the mine-boss of any person who may attempt to carry tools on the cage with them.

Duty of Top Hands.

92. The top hand at the top of any slope or incline plane shall be very careful to close the safety block or other device as soon as the cars have reached the landing, so as to prevent any loose or runaway cars from de-

scending the slope or incline plane, and in no case shall such safety block or other device be withdrawn until the signal has been given and the cars coupled to the rope or chain.

93. The top hand at the top of any shaft shall be very careful to see that the springs or legs for the cage to rest upon are kept in good working order, and when taking the full car off he must be careful that no coal or other material is allowed to fall down the shaft.

94. He shall be at his post at all times when persons are descending or ascending the shaft; he shall not allow any more persons to get on the cage than the limit allowed by law, and he shall not allow any tools to be placed on the same cage with men or boys, nor on either cage when persons are being hoisted out of, or lowered, into the mine, and he shall immediately inform the mine-boss of any violation of this rule.

General Rules.

95. No person, except the drivers or trip runners, are permitted to ride on the cars either in or outside of the mine.

96. The burning of any oil other than the Miners' Abstract, No. 1, is forbidden. Drivers must carry and burn their own oil. Miners are requested to report to the mine-boss any stealing or begging of oil from the miners for cars, &c.

97. No person is allowed to travel to or from his work on the locomotive roads during working hours, nor shall they travel such roads after the locomotive has ceased running unless they have the permission of the mine-boss.

98. When operations in the mine or any part of mine are stopped on account of any danger that may arise, the mine-boss will see that no persons are allowed to continue work in the mine or that part of the mine where the danger exists until such danger is removed, only those persons who are engaged in removing such danger.

99. No boy, under twelve years of age, shall be allowed to work in or to enter into any mine for any purpose whatever, and before boys are hired, proof must be had of their age, by certificate or otherwise.

100. Printed rules defining the duties of all persons in or about the mines shall be kept posted in a conspicuous place.

101. Any person who opens a ventilating door must close it again before leaving it.

102. If any person should receive an injury in or about the mine, the outside foreman shall immediately send for a doctor, and at once inform the superintendent thereof, and in case of a fatal or serious accident, the mine inspector must be informed of the same immediately.

103. No stranger shall be allowed to go into the mine unless he or they are accompanied by some of the mine officials.

104. No person in a state of intoxication shall be allowed to go into or loiter about the outside of the mine.

105. Every miner is engaged subject to the general and special rules, and he must, in all cases, act in strict accordance therewith.

106. Where the law requires the mine to be examined before the men are allowed to proceed to their working-places, a station shall be arranged for the fireman to return to, after he has carefully examined the working-places, as required by law; the fire-boss shall order the men and boys to proceed to their respective working places after finding the mine to be in safe condition. No person, under any pretense whatever, shall pass beyond this station until having orders from the fire-boss to do so. Any person violating this rule shall be dealt with as set forth in rule 62.

107. An ambulance shall be provided at each mine for carrying any miner who may be injured in or about the mine.

108. All employés are requested to inform the mine-boss of the unsafe condition of a working-place or traveling ways, or of damage to doors, brattices, or stoppings, or of obstructions to the air-passages if known to them.

109. Tamping bars must be tipped with at least six inches of copper or other soft metal when used for tamping a hole for the purpose of blasting coal, rock, or slate, and no iron or steel pricker or needle shall be used.

110. A charge of powder or other explosive which has missed fire shall not be withdrawn or the hole re-opened, but where necessary a new hole shall be prepared.

111. No person shall be employed to blast coal, rock, or slate unless the mine-boss is satisfied that such person is qualified, by experience and judgment, to perform the work with ordinary care.

112. The mine-boss shall cause to be constructed safety blocks or some other device for the purpose of preventing any cars from falling into the shaft or running away on a slope or plane, and said safety blocks or other device must be maintained in good working order.

113. Safety-lamps shall only be used after having been examined and securely locked by a competent person.

114. Every workman employed at this mine shall examine his working-place before commencing work, and after any stoppage of work during the shift he shall be careful to repeat such examination.

115. No person shall be allowed to travel to or from his work on any incline plane or dilly roads when other roads are provided for that purpose.

116. When a miner is leaving the employ of the operator, he must see that all loose slate or rock is taken down, and his working-place left in a safe and proper condition.

117. Any workman who shall disobey or fail to carry out any order given, or willfully violate any rule whereby his own life or the lives of other persons may be endangered, or any employé or other person who shall willfully deface, pull down, or destroy any notice board, danger signal, general or special rules, or mining laws, will be prosecuted as provided for in the twenty-first section of the mining law.

TABLE I.—*Showing location of collieries in the Seventh Bituminous Mine District.*

NAME OF COLLIERY.	Name of Operator.	Location—County.	Name of Superintendent.	Post Office Address.
Allequippa,	Bailey, Wilson & Co.,	Allegheny,	James Wilson,	Camden.
Amity,	J. C. Risher & Co ,	do.	S. S. Crmnp,	Dravosburg.
Bellevue,	Bellevue Coal Company,	do.	William Huey,	Elizabeth.
Blackburn,	Foster, Clark & Co.,	do.	Thomas Foster,	Coal Valley.
Bellewood,	Mnnhall Brothers,	do.	John Mnnhall,	Homestead.
Beck's Run,	H. B. Hays & Brothers,	do.	Peter Trantman,	Water street, Pittsburgh.
Boden,	Chartiers Coal and Coke Company,	do.	David Boden,	Mansfield.
Beadling,	Beadling Brothers,	do.	Mr. Beadling,	Essen.
Beach Cliff,	Imperial Coal Company,	do.	J. W. Brown,	Montour.
Buena Vista,	South-West Coal Company,	do.	William Duncan,	Buena Vista.
Blythe, No. 1,	Blytbe Coal Company,	do.	Mr. Blythe,	Blysdale.
Blythe, No. 2,	do. do.	do.	do.	do.
Belleview,	Belleview Coal Company,	do.	P. Y. Hite,	Hite's.
Bridgeville,	A. J. Shulte,	do.	C. P. Mayer,	Bridgeville.
Camden,	George Lysle & Sons,	do.	George Griffiths,	Camden.
Castle Shannon,	Castle Shannon Coal Company,	do.	Alexander Patterson,	South Side, Pittsburgh.
Chess,	Gray & Bell,	do.	Martin Gray,	Banksville.
Clark,	Clark, Lynn & Co.,	do.	Frederick Keigbtly,	Federal.
Cherry,	Morris McCue,	do.	Morris McCue,	Walker's Mills.
Camp Hill,	David Steen.	do.	David Steen,	Mansfield.
Cornell & Wel ling,	W. H. Brown's Sons,	do.	Robert Cornell,	Boston.
Coal Ridge,	Gray & Bell,	do.	Martin Gray,	Banksville.
Enterprise,	Hartley & Marshall,	do.	Rodger Hartley,	do.
Essen,	Sanford & Co.,	do.	N. S Sanford,	Mansfield.
Ewing,	Ewing & Gordon,	do.	J. W. Ewing,	Walker's Mills.
Eagle's Nest,	Green Oak Coal Company,	do.	Thomas Painter,	Duncan, Westmoreland county.
Fox,	Thomas Fox,	do.	Hugh Murray,	Temperanceville.
Federal Spring,	W. J. Steen,	do.	W. J. Steen,	Federal.
Fort Pitt,	Fort Pitt Coal Company,	dq.	J. E. McCrickett,	397 Liberty street, Pittsburgh.
Green Springs,	Thomas Fawcett,	do.	Thomas Carric,	Braddock.
Glendale,	Gregg Brothers,	do.	G. B. Gregg,	Mansfield.
Glasshouse,	Glasshouse Coal Company,	do.	John Herley,	Woodville.
Glenshaw,	Spencer & Co.,	do.	S. M. Spencer,	Glenshaw.
Grant,	Grant Coal Company,	do.	George Hossack,	Mansfield.
Harvey O'Neil.	O'Neil & Co.,	do.	Harvey O'Neil,	Elizabeth.
Horner & Roberts, No. 3,	Horner & Roberts,	do.	Samuel Roberts,	do.
Horner & Roberts, No. 4,	do. do.	do.	do.	do.
Hays' Street Run, Nos. 1 & 2,	Hays' Estate,	do.	John Watson,	Hope Church.
Hastings Slope,	Penn Coal Company,	do.	John Neish,	Bridgeville.
Idlewood,	Phœnix Coal Company,	do.	T. D. Stewart,	Crafton.
Imperial,	Imperial Coal Company,	do.	J. W. Brown,	Montour.
Jones,	George Jones,	do.	George Jones,	Elizabeth.
Jones & Laughlin,	Jones & Laughlin,	do.	James Doran,	Twenty-seventh ward, South Side, Pittsburgh.
James O'Neil,	James O'Neil,	do.	James O'Neil,	McKeesport.

Keightly,	Fountain Hill Mining Company,	do.	Frederick Keightly,	Federal.
Lovedale,	John A. Wood & Sons,	do.	John Hollingshead,	Elizabeth.
Lower Walton,	Joseph Walton & Co.,	do.	John Rike,	do.
Laurel Hill,	W. P. Rend,	do.	John Rend,	McDonald.
Lake Shore,	Lake Shore Gas Coal Company,	do.	C Wisser,	Robbins, Westmoreland county.
Milesville,	Robert Jenkins,	do.	Robert Jenkins,	Sunny Side.
Mansfield, No. 2,	Mansfield Coal and Coke Company,	do.	Robert Bell,	Mansfield.
Mansfield, No. 3,	do. do.	do.	do.	do.
McConnell,	Joseph McConnell,	do.	Joseph McConnell,	Oakdale.
National,	National Coal Company,	do.	Edward Fisher,	Noblestown.
Old Eagle,	W. H. Brown's Sons,	do.	John E. Jones,	Elkhorn.
Ormsby,	Birmingham Coal Company,	do.	Joseph Keeling,	South Side, Pittsburgh.
Oak Ridge,	Oak Ridge Coal Company,	do.	Charles Withelm,	Oakdale.
Ocean, No. 2,	Youghiogheny Coal Company,	do.	J. T. Hosack,	Scott Haven.
Ocean, No. 3,	do. do.	do.	do.	do.
Ocean No. 4,	do. do.	do.	do.	do.
Pine Run, No. 1,	John O'Neil & Co.,	do.	John O'Neil,	Coal Valley.
Pine Run, No. 2,	do. do.	do.	do	do.
Peters' Creek,	Peters' Creek Coal Company,	do.	John Larrance,	Gasconville.
Pioneer,	Youngstown and Chicago Coal Company,	do.	Reuben Street,	Mansfield.
Penny,	David Lynch,	do.	Georgo Crouch,	McKeesport.
Risher,	I. D. Risher,	do.	Charles Giles,	Hope Church.
Robbins,	William Robbins & Co.,	do.	Williams Robbins,	Coal Valley.
Rock Run,	William Snodgrass & Co.,	do.	J. D. Scott,	Camden.
Rankin,	John Perry & Co.,	do.	John Perry,	Sunny Side.
Stone's,	William Stone & Co.,	do.	J. W. Stone,	McKeesport.
Star,	Francis Mankedick,	do.	Francis Mankedick,	Sturgeon.
Summerhill,	Frank Armstrong,	do.	Frauk Armstrong,	Woodville.
Smyth,	Smyth, Powers & Co.,	do.	J. T. Head,	Federal
Tom's Run,	Hooper, Spees & Co.,	do.	N. P. Ramsey,	do.
Upper Walton, Nos. 1 and 2,	Joseph Walton & Co.,	do.	John Rike,	Elizabeth.
Venture,	Gray & Bell,	do.	Martin Gray,	Banksville.
West Elizabeth,	O'Neil & Co.,	do.	John N. Large,	Elizabeth.
Walton,	Joseph Walton & Co.,	do.	Morris Capp,	134 Water street, Pittsburgh.
Willow Grove,	Willow Grove Coal Company,	do.	T. B. Robbins,	Sturgeon.
Watson Shaft,	Watson Brothers,	do.	Robert Watson,	East street, Allegheny City.
Winona,	Wiuona Coal Company,	do.	William Skiller,	Shire Oaks.

TABLE II.—*Showing character of coal, production, number of employés, days employed, casualties, &c., in the Seventh Bituminous Mine District.*

COLLIERIES.	Operators.	Character of coal, (Anthracite or Semi-Anthracite, Bituminous or Semi-Bituminous.)	Drift, slope, or shaft.	Number of inside workmen.	Number of outside workmen.	Total employees.	Number of days worked inside.	Number of days worked outside.	Number of horses and mules.	PRODUCTION.		CASUALTIES.				
										Number of tons produced.	Number of tons shipped.	Killed inside.	Killed outside.	Injured inside.	Injured outside.	Total killed and injured.
Allequippa,	Bailey, Wilson & Co.,	Bituminous,	Drift,	184	25	209	100	100	17	58,834		1				1
Amity,	J. C. Risher & Co.,	do.	do.	165		165	110		17	54,938						
Bellevue,	Bellevue Coal Company,	do.	do.	153	20	173	80	80	13	38,807		1				1
Blackburn,	Foster, Clark & Co.,	do.	do.	170	19	189	87	87	10	41,500		1				1
Bellewood,	Munhall Bros.,	do.	do.	150	12	162	84	84	8	36,000						
Beck's Run,	H. B. Hays & Bros.,	do.	do.	175	17	192	50	50	15	24,000						
Boden,	Chartiers Coal and Coke Company,	do.	do.	65	5	70			5	23,731						
Beadling,	Beadling Bros.,	do.	Slope,	30	3	33	200	200	2	15,000						
*Beach Cliff,	Imperial Coal Company,	do.	Drift,											1		1
Buena Vista,	South-West Coal Company,	do.	do.	160	6	166	206	206	6	60,368						
Blythe, No. 1,	Blythe Coal Company,	do.	do.	200	15	215	150	150	8	61,693						
*Blythe, No. 2,	do. do.	do.	do.													
†Belleview,	Belleview Coal Company,	do.	do.													
Bridgeville,	A. J. Shuttle,	do.	do.	84	4	88	216	216	3	39,000				1		1
Camden,	George Lyle & Sons,	do.	do.	200	13	213	90	90	14	50,308		1				1
Castle Shannon,	Castle Shannon Coal Company,	do.	do.	130	21	151	192	192	6	45,297						
Choss,	Gray & Bell,	do.	do.	50	7	57	124	124	5	20,072				1		1
Clark,	Clark, Lynt & Co.,	do.	Slope,	40	3	43	60	60	2	5,200				1		1
Cherry,	Morris McCue,	do.	Drift,	43	9	52	174	174	6	17,511						
Camp Hill,	David Steen,	do.	do.	87	10	97	150	150	5	26,100						
Cornell & Werling,	W. H. Brown's Sons,	do.	do.	200	20	220	120	120	10	51,586				1		1
Coal Ridge,	Gray & Bell,	do.	do.	50	5	55	165	165	5	29,086						
Enterprise,	Hartley & Marshall,	do.	do.	250	12	262	264	264	9	147,109						
Essen,	Sanford & Co.,	do.	do.	183	8	191	197	197	6	70,399						
Ewing & Gordon,	Ewing & Gordon,	do.	do.	40	4	44	200	200	3	20,000						
Eagle's Nest,	Green Oak Coal Company,	do.	do.	20	2	22	80	80	1	7,000						
Fox,	Thomas Fox,	do.	do.	35	3	38	300	300	2	15,481						
Federal Spring,	W. J. Steen,	do.	do.	50	5	55	170	170	3	11,294						
Fort Pitt,	Port Pitt Coal Company,	do.	do.	55	6	61	220	220	8	35,000						
Green Springs,	Thomas Fawcett,	do.	do.	40	5	45	90	90	4	10,300						
Glendale,	Gregg Bros.,	do.	do.	25	3	28	280	280	2	20,000						
Glasshouse,	Glasshouse Coal Company,	do.	do.	50	5	55	250	250	5	15,960						
Glenshaw,	Spencer & Co.,	do.	do.	30	3	33	301	301	4	17,500						

Grant,	Grant Coal Company,	do.	do.	120	5	125	168	168	14	48,854								
Harvey O'Neil,	O'Neil & Co.,	do.	do.	80	15	95	8	8	5	1,500								
Horner & Roberts, No. 3,	Horner & Roberts,	do.	do.	214	21	235	91	91	10	42,350			1					1
*Horner & Roberts, No. 4,	do.	do.	do.															
Hays' Street Run,	Hays' Estate,	do.	do.	225	25	250	66	66	16	35,000					1			1
Hastings Slope,	PennCoal Company,	do.	Slope,	60	5	65	215	215	4	30,000								
Idleywood,	Phœnix Coal Company,	do.	Drift,	38	5	43	175	175	2	11,226								
Imperial,	Imperial Coal Company,	do.	do.	196	18	214	168	168	12	110,721			1					1
Jones,	George Jones & Co.,	do.	do.	98	14	112	62	62	8	31,312								
Jones & Laughlin,	Jones & Laughlin,	do.	do.										1					1
James O'Neil,	James O'Neil,	do.	do.	110	10	120	149	149	8	22,800								
Keightly,	Fountainhill Mining Company,	do.	do.	48	2	50	60	60	2	2,762								
Lovedale,	John A. Wood & Sons,	do.	do.	150	16	166	115	115	10	32,543								
*Lower Walton,	Joseph Walton & Co.,	do.	do.															
Laurel Hill,	W. P. Rend,	do.	do.	350	40	390	300	300	20	259,476			1					1
Lake Shore,	Lake Shore Gas Coal Company,	do.	do.	35	4	39	150	150	3	18,000								
Milesville,	Robert Jenkins,	do.	do.	164	11	175	92	92	11	35,565								
Mansfield, No. 2,	Mansfield Coal and Coke Company,	do.	do.	200	12	212	218	218	11	147,832								
*Mansfield, No. 3,	do. do.	do.	do.	75	12	87	115	115	7									
McConnell,	Joseph McConnell,	do.	do.	46	15	61	240	240	5	25,992								
National,	National Coal Company,	do.	do.	80	7	87	180	180	4	17,959								
Old Eagle,	W. H. Brown & Sons,	do.	do.	130	10	140	185	185	9	47,108								
Ormsby,	Birmingham Coal Company,	do.	do.	260	45	305	280	280	75	126,433								
Oak Ridge,	Oak Ridge Coal Company,	do.	do.	70	8	78	215	215	3	30,400								
Ocean, No. 2,	Youghiogheny Coal Company,	do.	do.	434	25	459	212	212	20	193,654			2		1			3
*Ocean, No. 3,	do. do.	do.	do.				146	146										
*Ocean, No. 4,	do. do.	do.	do.				133	133										
Pine Run, No. 1,	John O'Neil & Co.,	do.	do.	235	22	257	91	91	15	43,518								
*Pine Run, No. 2,	do.	do.	do.															
Peters' Creek,	Peters' Coal Company,	do.	do.	60	4	64	250	250	4	25,000								
Pioneer,	Youngstown and Chicago Coal Company,	do.	do.	75	5	80	105	105	3	13,950								
Penny,	David Lynch,	do.	do.	112	13	125	70	70	10	28,000								
Risher's,	I. D. Risher,	do.	do.	146	15	161	97	97	9	24,700								
Robbins,	William Robbins & Co.,	do.	do.	150	10	160	92	92	12	32,141								
Rock Run,	William Snodgrass & Co.,	do.	do.	120	6	126	109	109	7	28,808								
Rankiu,	John Perry & Co.,	do.	do.	20	3	23	60	60	2	3,600								
Stone's,	William Stone & Co.,	do.	do.	156	15	171	184	184	11	71,178								
Summer Hill,	Frank Armstrong,	do.	do.	90	6	96	257	257	8	40,000			1		1			2
Smythe,	Smythe, Powers & Co ,	do.	Slope,	55	3	58	180	180	6	34,000								
Star,	Francis Mankedick,	do.	Drift,	30	4	34	150	150	4	18,000								
Tom's Run,	Hooper, Spees & Co.,	do.	Slope,	55	6	61	144	144	3	20,506								
*Upper Walton,	Joseph Walton & Co.,	do.	Drift,															
Venture,	Gray & Bell,	do.	do.	180	8	188	140	140	12	60,543					3			3
West Elizabeth,	O'Neil & Co.,	do.	do.	100	10	110	90	90	20	29,461								
Walton,	Joseph Walton & Co.,	do.	do.	684	48	732	103		49	177,765								
Willow Grove,	Willow Grove Coal Company,	do.	do.	120	10	130	260	260	9	51,100					1			1
Watson Shaft,	Watson Bros.,	do.	Shaft,	20	6	26	200	200	2	8,000					1			1
Winona,	Winona Coal Company,	do.	Drift,	25	5	30	140	140	3	7,600								

*Reported in the aggregate with other mines operated by the same person or firms.
†Mines in operation, but not employing a sufficient number of men to bring them under the law.

TABLE III.—*Showing methods of ventilation, size of fans and furnaces, size of inlets and outlets, number of headings, number of openings, and the air measurements taken at the collieries in the Seventh Bituminous Mine District.*

COLLIERIES.	Ventilation—Natural, Furnace, or Fan.	Number of openings.	Diameter of fan in feet.	Size of furnace in feet.	Size of inlet in square feet.	Size of outlet in square feet.	Number of headings.
Allequippa,	Furnace,	3		8x5½	9x5½	8x5½	
Amity,	Furnace,	3		24			
Bellevue,	Natural,	3					
Blackburn,	Furnace,	3					
Bellewood,	Natural,	3			6½x5½	6½x5½	8
Beck's Run,	Furnace,	3		5x7x2	8x6	8x5	4
Boden,	Furnace,	3		8x6	7x7	5x8	5
Beadling,	Exhaust steam,	2					
Beach Cliff,	Furnace,	8		24x7x5	6x7	6x6	15
Buena Vista,	Furnace,	3					
Blythe, No. 1,	Furnace,	3					
Blythe, No. 2,	Natural,	3					
Bridgeville,	Natural,	5			5x5x2	4x7x3	5
Camden,	Furnace,	3		8½x24	6x13	6x7½	3
Castle Shannon,	Natural,	4			5x7x3	5x7x3	4
Chess,	Fan,	3	16				
Clark,	Natural,	2					
Cherry,	Natural,	3					
Camp Hill,	Furnace,	3			6½x5	6x5	6
Cornell & Werling,	Furnace,	3		30x6½			
Coal Ridge,	Furnace,	1		6x4x2	8x5	8x5	4
Enterprise,	Fan,	3	16		9x5	9x7	8
Essen,	Fan,	3	6				
Ewing,	Natural,	3			9x6	6x6	6
Eagle's Nest,	Natural,	2					
Fox,	Furnace,	3					
Federal Springs,	Natural,	4			A. 78	A. 44	3
Fort Pitt,	Natural,	5			5x6	5x6	6
Green Springs,	Natural,	3					
Glendale,	Fire-basket,	3					
Glasshouse,	Furnace,	3		7x4	8x6	6x6	2
Grant,	Furnace,	3			8x5	7x5	6
Glenshaw,	Furnace,	3					
Harvey O'Neil,	Natural,	2			4x5	8x8	4
Horner & Roberts, No. 3,	Furnace,	6			A. 93	A. 126	
Horner & Roberts, No. 4,	Furnace,	2			A. 54	A. 46	5
Hays' Street Run,	Natural,	3			7x6	7x6	6
Hastings Slope,	Furnace,	2			8x6	8x5½	3
Idlewood,	Furnace,	3		8x4½x4	12x5	5x5	4
Imperial,	Furnace,	5			6x8	5x7	19
Jones,	Furnace,	2			6x7½	7x5	4
Jones & Laughlin,	Natural.						
James O'Neil,	Exhaust steam,	3			8x5½	6x5	
Keightly,	Furnace,	3			7x5½	7x5	
Lovedale,	Furnace and exhaust steam,				6x8	8x5½	3
Lower Walton, Nos. 1 & 2,	Natural,	3			7x6	7x6	18
Laurel Hill,	Fan,	3					
Lake Shore,	Natural,	3					
Milesville,	Furnace,	3					
Mansfield, No. 2,	Furnace,	4		8x7	6x7x2	6x8x2	8
Mansfield, No. 3,	Natural,	4			7x6	7x6	6
McConnell,	Natural,	3			7x5	7x5	5
National,	Exhaust steam,	3			A. 70	6x8	3
Old Eagle,	Furnace,	3		8x7	A. 26	A. 30	8
Ormsby,	Fan and furnace,	3					
Oak Ridge,	Furnace,	3		6x28	A. 84	A. 40	4
Ocean, No. 2,	Furnace,	6			7x8	6x8	26
Ocean, No. 3,	Furnace.						
Ocean, No. 4,	Furnace,	6			6x7	6x6	8
Pine Run, No. 1,	Furnace,	3		6x20	6x8	6x8	
Pine Run, No. 2,	Furnace,	3		6x20	6x8	6x8	
Peters' Creek,		4					
Pioneer,	Furnace,	3					
Penny,	Natural,	3					
Rishers,	Furnace,	3					
Robbins,	Furnace,	3					

TABLE III.—*Continued.*

Collieries.	Ventilation—Natural, Furnace, or Fan.	Number of openings.	Diameter of fan in feet.	Size of furnace in feet.	Size of inlet in square feet.	Size of outlet in square feet.	Number of headings.
Rock Run,	Natural,	3					
Rankin,	Furnace,	2					
Stone's,	Furnace,	3		7½x6½	7½x6½	9x5½	6
Star,	Furnace,	3					
Summer Hill,	Furnace and exhaust steam,	3			5x7	4x7	2
Smythe,	Exhaust steam,	3					
Tom's Run,	Furnace,	4			5½x7½	5x7	7
Upper Walton,	Natural,	3			7x5½	7x5½	10
Venture,	Fan,	6	16		6x7	6x7	
West Elizabeth,	Natural,	3					
Walton,	Natural,	9			7x6	7x6	8
Willow Grove,	Furnace,	3			7x6	6x7	4
Watson's Shaft,	Fan,	1			8x12	4x8	2
Winona,	Natural,	2					

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	NOVEMBER—1884.						DECEMBER—1884.					
	Velocity of air current per minute at inlet	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Allequippa,												
Amity,												
Bellevue,												
Blackburn,												
Bellewood,												
Beck's Run,												
Boden,												
Beadling,												
Beach Cliff,												
Buena Vista,												
Blythe, No. 1,												
Blythe, No. 2,												
Belleview,												
Bridgeville,												
Camden,												
Castle Shannon,												
Chess,												
Clark,												
Cherry,												
Camp Hill,												
Cornell & Werling,												
Coal Ridge,												
Enterprise,												
Essen,												
Ewing & Gordon,												
Eagle's Nest,												
Fox,												
Federal Spring,												
Fort Pitt,												
Green Springs,												
Glendale,												
Glasshouse,												
Glenshaw,												
Grant,												
Harvey O'Neil,												
Horner & Roberts, No. 3												
Horner & Roberts, No. 4												
Hays' Street Run,												
Hastings Slope,												
Idlewood,												
Imperial,												
Jones,												
Jones & Laughlin,												
James O'Neil,												
Keightly,												
Lovedale,												
Lower Walton,												
Laurel Hill,												
Lake Shore,												
Milesville,												
Mansfield, No. 2,												
Mansfield, No. 3,												
McConnell,												
National,												
Old Eagle,												
Ormsby,												
Oak Ridge,												
Ocean, No. 2,												
Ocean, No. 3,												
Ocean, No. 4,												
Pine Run, No. 1,												
Pine Run, No. 2,												
Peters' Creek,												
Pioneer,												
Penny,												

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

Name of Colliery.	November—1884.						December—1884.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Risher's,												
Robbins,												
Rock Run,												
Rankin,												
Stone's,												
Summer Hill,												
Smythe,												
Star,												
Tom's Run,												
Upper Walton,												
Venture,												
West Elizabe h,												
Walton,												
Willow Grove,												
Watson Shaft,												
Winona,												

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Alleqnippa,																		
Amity,																		
Bellevue,																		
Blackburn,																		
Bellewood,																		
Beck's Run,																		
Boden,																		
Beadling,																		
Beech Cliff,																		
Buena Vista,																		
Blythe, No. 1,																		
Blythe, No. 2,																		
Belleview,																		
Bridgeville,																		
Camden,																		
Castle Shannon,																		
Chess,																		
Clark,																		
Cherry,																		
Camp Hill,																		
Cornell & Werling,																		
Coal Ridge,																		
Enterprise,																		
Essen,																		
Ewing & Gordon,																		
Eagle's Nest,																		
Fox,																		
Federal Spring,																		
Fort Pitt,																		
Green Springs,																		

Glendale,
Glasshouse,
Glenshaw,
Grant,
Harvey O'Neil,
Horner & Roberts, No. 3,
Horner & Roberts, No. 4,
Hays' Street Run,
Hastings Slope,
Idlewood,
Imperial,
Jones,
Jones & Laughlin,
James O'Neil,
Keightly,
Lovedale,
Lower Walton,
Laurel Hill,
Lake Shore,
Milesville,
Mansfield, No. 2,
Mansfield, No. 3,
McConnell,
National,
Old Eagle,
Ormsby,
Oak Ridge, 2,
Ocean, No. 2,
Ocean, No. 3,
Ocean, No. 4,
Pine Run, No. 1,
Pine Run, No. 2,
Peters' Creek,
Pioneer,
Penny,
Risher's,
Robbins,
Rock Run,
Rankin,
Stone's,
Summer Hill,
Smythe,
Star,
Tom's Run,
Upper Walton,
Venture,
West Elizabeth,
Walton,
Willow Grove,
Watson Shaft,
Winona,

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	APRIL.						MAY.						JUNE.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Allequippa,																		
Amity,																		
Bellevue,																		
Blackburn,																		
Bellewood,																		
Beck's Run,																		
Boden,																		
Beadling,																		
Beach Cliff,																		
Buena Vista,																		
Blythe, No. 1,																		
Blythe, No. 2,																		
Belleview,																		
Bridgeville,																		
Camden,																		
Castle Shannon,																		
Chess,																		
Clark,																		
Cherry,																		
Camp Hill,																		
Cornell & Werling,																		
Coal Ridge																		
Enterprise,																		
Essen,																		
Ewing & Gordon,																		
Eagle's Nest,																		
Fox,																		
Federal Springs,																		
Fort Pitt,																		
Green Springs,																		
Glendale,																		

Glasshouse,
Glenshaw,
Grant,
Harvey O'Neil,
Horner & Roberts, No. 3,
Horner & Roberts, No. 4,
Hays' Street Run,
Hastings Slope,
Idlewood,
Imperial,
Jones,
Jones & Laughlin,
James O'Neil,
Keightly,
Lovedale,
Lower Walton, Nos. 1 and 2,
Laurel Hill,
Lake Shore,
Milesville,
Mansfield, No. 2,
Mansfield, No. 3,
McConnell,
National,
Old Eagle,
Ormsby,
Oak Ridge,
Ocean, No. 2,
Ocean, No. 3,
Ocean, No. 4,
Pine Run, No. 1,
Pine Run, No. 2,
Peters' Creek,
Pioneer,
Penny,
Risher's,
Robbins,
Rock Run,
Rankin,
Stone's,
Summerhill,
Smythe,
Star,
Tom's Run,
Upper Walton,
Venture,
West Elizabeth,
Walton,
Willow Grove,
Watson's Shaft,
Winona,

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current at outlet.	Number of cubic feet per minute passing out.
Allequippa,																		
Amity,																		
Bellevue,																		
Blackburn,																		
Bellewood,																		
Beck's Run,																		
Boden,																		
Beadling,																		
Beech Cliff,																		
Buena Vista,																		
Blythe, No. 1,																		
Blythe, No. 2,																		
Belleview,																		
Bridgeville,																		
Camden,																		
Castle Shannon,																		
Chess,																		
Clark,																		
Cherry,																		
Camp Hill,																		
Cornell & Werling,																		
Coal Ridge,																		
Enterprise,																		
Essen,																		
Ewing & Gordon,																		
Eagle's Nest,																		
Fox,																		
Federal Spring,																		
Fort Pitt,																		
Green Springs,																		

Glendale,
Glasshouse,
Glenshaw,
Grant,
Harvey O'Neil,
Horner & Roberts, No. 3,
Horner & Roberts, No. 4,
Hays' Street Run,
Hastings Slope,
Idlewood,
Imperial,
Jones,
Jones & Laughlin,
James O'Neil,
Keightly,
Lovedale,
Lower Walton,
Laurel Hill,
Lake Shore,
Milesville,
Mansfield, No. 2,
Mansfield, No. 3,
McConnell,
National,
Old Eagle,
Ormsby,
Oak Ridge,
Ocean, No. 2,
Ocean, No. 3,
Ocean, No. 4,
Pine Run, No. 1,
Pine Run, No. 2,
Peters' Creek,
Pioneer,
Penny,
Risher's,
Robbins,
Rock Run,
Rankin,
Stone's,
Summer Hill,
Smyth,
Star,
Tom's Run,
Upper Walton,
Venture,
West Elizabeth,
Walton,
Willow Grove,
Watson Shaft,
Winona,

TABLE III.—VENTILATION OF COLLIERIES.—*Continued.*

NAME OF COLLIERY.	OCTOBER.						NOVEMBER.						DECEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Allequippa,													600	27,060				
Amity,																		
Bellevue,																		
Blackburn,																		
Bellewood,																		
Beck's Run,																		
Boden,													240	11,120				
Beadling,																		
Beach Cliff,							275	11,550					260	12,500			450	15,200
Buena Vista,																		
Blythe, No. 1,																		
Blythe, No. 2,																		
Belleview,																		
Bridgeville,													165	7,920				
Camden,													200	15,600	350	13,710	375	16,330
Castle Shannon,													100	10,500	100	3,500	100	10,500
Chess,																		
Clark,																		
Cherry,																		
Camp Hill,																		
Cornell & Werling,																		
Coal Ridge,													120	4,800				
Enterprise,																		
Essen,																		
Ewing & Gordon,							27	1,475					130	5,217				
Eagle's Nest,																		
Fox,																		
Federal Springs,													154	12,000				
Fort Pitt,							150	4,500					163	4,900				
Green Springs,																		
Glendale,																		

Glasshouse,																		
Glenshaw,																		
Grant,							437	17,500										
Harvey O'Neil,																		
Horner & Roberts, No. 3,													347	32,260			261	32,880
Horner & Roberts, No. 4,													275	14,850			330	15,180
Hays' Street Run,																		
Hastings Slope,							173	8,304										
Idlewood,																		
Imperial,							250	12,000			446	15,610	225	10,800			300	14,600
Jones,																		
Jones & Laughlin,																		
James O'Neil,																		
Keightly,																		
Lovedale,																		
Lower Walton, Nos. 1 & 2,																		
Laurel Hill,																		
Lake Shore,																		
Milesville,																		
Mansfield, No. 2,								29,000					400	40,000				
Mansfield, No. 3,																		
McConnell,																		
National,							242	16,940	120	4,200	655	31,440	173	12,250	115	4,025	515	24,120
Old Eagle,													350	8,900				
Ormsby,																		
Oak Ridge,							105	8,880			240	9,600	130	10,400	300	10,000	352	14,120
Ocean, No. 2,								29,102						31,440				
Ocean, No. 3,																		
Ocean, No. 4,								6,635						4,500				
Pine Run, No. 1,																		
Pine Run, No. 2,																		
Peters' Creek,																		
Pioneer,																		
Penny,																		
Risher's,																		
Robbins,																		
Rock Run,																		
Rankin,																		
Stone's,																		
Summerhill,							275	9,625			350	9,800	285	9,975				
Smyth,																		
Star,																		
Tom's Run,								9,000						11,000				
Upper Walton,														30,090				
Venture,								30,000										
West Elizabeth,																		
Walton,																		
Willow Grove,													290	13,000				
Watson's Shaft,																		
Wenona,																		

TABLE IV.--LIST OF ACCIDENTS *occurring in the mines of the Seventh Bituminous Mine District, for the year ending December 31, 1885.*

Date of accident.	Name of Person Injured.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident.
Feb. 12	James Castor,	46			Chess,	Allegheny,		Leg broken by falling slate.
16	D. W. Phillips,	38	Married,		Upper Walton,	do.		Hurt by falling roof.
Mch. 9	Thomas Davison,	62	do.		Jones & Laughlin,	do.		Killed by the roof falling upon him.
Apr. 13	William Davis,	15	Single,		Bellevue,	do.		Killed by falliug slate, while workiug with au elder brother.
15	Robert Connelly,	27	Married,		Cornell & Werling,	do.		Leg broken by falling slate.
16	John Suntzdorfer,	20	Single,		Hays' Street Ruu,	do.		Was caught between the car and side and broke his thigh.
23	Daniel Dougherty,	32	do.		Horner & Roberts,	do.		Fatally injured by falling slate; died the same day.
24	Hugh Pace,	42	Married,		Upper Walton,	do.		Hurt by falling slate.
28	Frauk Reinhart,	30	Single,		Allequippa,	do.		Back broken by being caught between the roof and a full car; died May 3.
May 2	George Maunly,	60	Married,		Upper Walton,	do.		Hurt by falling off the cars and being run over.
4	Barney McSee,		do.	6	Blackburn,	do.		Killed by falling roof, while gathering roof coal in an old room.
June 13	Arthur Vassner,	14	Single,		Imperial,	do.		Killed by falling slate, while working with his father.
July 28	Joseph Burger,	35	Married,	5	Camdeu,	do.	July 29	Killed by being caught between the cars and coal ribs.
Sept. 1	Barney Lindboy,	28	Single,		Ocean, No. 2,	do.	Sept. 2	Killed by falling slate.
11	Thomas Jones,	55	Married,		do.	do.	12	Killed by falling coal and slate.
15	Peter Carroll,	22	Siugle,		Laurel Hill,	do.	16	Killed by falling slate.
28	M. Herslage,				Beach Cliff,	do.		Slightly hurt; was caught between a car and prop.
Oct. 29	Nathaniel Green,		Single,		Willow Grove,	do.		Slightly hurt by falliug slate.
Nov. 5	Sampson Spate,		Married,		Ocean, No. 2,	do.		Leg brokeu and haud crushed by falling slate.
10	Alec. McAlone,	55	do.		Watson Shaft,	do.		Leg broken by falling coal.
18	Heury Kelliuna,	42	do.	2	Summer Hill,	do.		Fatally injured by being crushed between the car aud roof, while ridiug on the couplings; he died November 22.
18	Maximilian DeBois,	30	do.		Clark,	do.		Slightly hurt by falling slate.
Dec. 15	George Dorn,	40	do.		Bridgeville,	do.		Slightly hurt by falling slate.
23	Richard Pardo,	24	do.		Summer Hill,	do.		Thigh broken by falling slate.

TABLE V.—*Showing the grand total of employés, horses, mules, engines, pumps, boilers, and powder employed, tons of coal mined and shipped, fatal and non-fatal accidents, &c., in the Seventh Bituminous Mine District, for the year ending December 31, 1885.*

Name of Counties and Parts of Counties in the District.	Total number of men employed.	Total number of boys employed.	Total number of horses and mules employed.	Total number of engines and pumps employed.	Total number of boilers employed.	Total number of kegs of powder consumed.	Total number of tons of coal produced.	Total number of tons of coal shipped.	Total number of fatal accidents.	Total number of non-fatal accidents.	Total number of times air measurements were taken.
Allegheny, ...	9,524	. . . . .	651	67	80	. . . . .	3,058,531	. . . . .	11	13	270

EIGHTH DISTRICT.

To the Honorable J. SIMPSON AFRICA, *Secretary of Internal Affairs of the Commonwealth of Pennsylvania:*

SIR: I have the honor to submit to you my annual report for the Eighth bituminous district, composed of Centre and Clearfield counties, except Du Bois and Bell's Gap railroad in Clearfield county. The coal trade in this district has gone on smoothly for the past year, the same low prices have prevailed in 1885 as in 1884. The condition of the mines continues steadily to improve, although the condition of the miner has not improved any—financially—in fact, he is in a worse condition now than he was a year ago, from the long continuance of low wages. Two very important changes have taken place in this region within the past year. The Lehigh Valley Coal Company have come into possession of the property formerly occupied by Berwin, White & Co., at Snow Shoe, Centre county, and Berwin, White & Co. have come into possession of the property formerly occupied by Harned, Jacob & Co., Clearfield county.

Concentration of capital seems to be the order of the day up here as well as in many other places. There have been three new plants of hauling machinery built and put in operation in the past year, and several others are projected.

Several additions and amendments have been made to the mining law in 1885; amongst the most important of these is that part of the law requiring mine-bosses to be citizens, and to pass an examination and be certified as to their competency to fill the position of mine-boss. There is no doubt but that part of the law, if faithfully carried out, will benefit both miner and operator in due time. General rules for the government of all persons employed in and about the mines are in force generally in this district. A copy of which I inclose with this report.

I am sorry to inform you that there have been thirty-four casualties in the past year, sixteen of which proved fatal and eighteen non-fatal.

MINING STATISTICS FOR THE YEAR 1885.

Fatal Accidents.

By falls of coal,	4
By falls of rock,	6
By wagons,	2
By drowning,	4

Non-Fatal Accidents.

By falls of coal,	14
By falls of rock,	2
By wagons,	2

Total production of coal,	3, 857, 803
Number of persons employed inside,	5, 324
Number of persons employed outside,	551
Total number of persons employed,	5, 875
Average number of days worked,	. . . . .
Average number of mules,	354
Number of coke ovens,	301
Average price paid for mining, per ton of 2,000 lbs.,	35
Number of fatal accidents,	16
Number of non-fatal accidents,	18
Number of tons of coal produced for each fatal accident,	241, 112
Number of tons of coal produced for each non-fatal accident,	214, 322

Accompanying this report will be found a map showing the relations of the old and new workings of that part of Franklin mine where the four men were drowned on September 22, 1885.

Yours, very respectfully,

John M. Watt.

Philipsburg, Centre County, Pa., *February 8, 1886.*

List of Collieries Idle and Partly Idle in 1885.

Atalanta has been idle all year.

Cody Ridge has not done much. Five to seven men have been partially employed.

Cuba has been idle.

Keystone has done very little.

Morrisdale, Nos. 8, 10, 11, 12, and 13, have only been working at short intervals.

Ashland has only worked a short time.

DESCRIPTION OF MINES IN CLEARFIELD COUNTY.

Eureka, No. 3,

Is located near Houtzdale, and is being fast worked out, having nothing but pillars to work on. It is ventilated by natural means, and, as is the case with this system of ventilation, the air sometimes is very deficient. John Allan is mining-boss.

Moshannon

Is located near Houtzdale. This is an old mine, and is being fast worked out, drawing pillars is all they have to work on. The general condition of this colliery is good. C. J. Paul is mining-boss.

Sterling Colliery

Is located in Houtzdale. This is the largest colliery in this, the Houtzdale, district. Although this colliery has been much troubled with faults, I have always found it in good condition. It has two openings, and the coal is hauled by locomotive.

Harrison Colliery

Is located in Houtzdale. This is a small colliery. It often has less than ten persons employed. There is not much solid ground to go over here, except taking out pillars that have been left by former operators. Thomas Benson is mining-boss.

Franklin Colliery

Is located in Houtzdale. It has two openings, from which coal is hauled by means of wire line driven by a locomotive, which is run on to a set of friction wheels, which are constructed so as to fit the driving wheels of the locomotive.

On the morning of September 22, a painful accident took place at this colliery, by which four men were drowned. The section of mine where the accident occurred had been double-shifted for some time, and two cross-headings were started away from the main heading and it was designed to pass an old heading that is shown on the working map of the mine, and supposed to contain water. When the main cross-heading was driven the distance of 60 feet, it was intended to turn at right angles with bore holes and tap the water that was supposed to be lying in this old entry. The main cross-heading had reached the distance of forty-nine feet from the main heading. The back-heading or air-course of the main cross-heading was driven about the same distance from the main heading, and a pillar or rib of twenty-two feet between main cross-heading and air-course heading. On the morning of September 22, this back-heading or air-course struck water with the result aforesaid. I was notified of the accident by telephone, and repaired to the scene with all the dispatch possible, and assisted in perfecting arrangements to take the water out, and to this end we were nobly assisted by both operators and miners. There were miners who stood forty-eight hours in water up to the knees, and some of the operators and superintendents closed their works and sent their men and mules to our assistance; notably among these were James Campbell, of Sterling; Peter Cameron, of Eureka; Robert Whitehead, of Atlantic; and C. W. Van Dusen, of Webster, No. 2. We succeeded in reaching the bodies in forty-eight hours.

One look at the map of the mine convinced me that either the old or the new workings were wrongly mapped, and to determine that point I telegraphed to Lauchie Macdonald, mining-engineer, to come and make a survey of the old and new works. He did so, and the accompanying map of that section of the mine, and the scene of the accident, will explain itself. After the accident, new cross-headings were started to reach another point in the old workings, which was known to contain water. They approached with bore-holes in advance, and were successful in tapping it. The works have now assumed their normal condition. E. A. Foster is mining-boss.

Webster, No. 2,

Is located near Houtzdale. When I visited this colliery on September 18, 1885, I found it in very poor condition as to ventilation. I notified the company to have it remedied at once, and gave them thirty days to do it in. I returned again on October 16, and instead of finding no current as I had before, I found six thousand five hundred cubic feet passing. They had erected a furnace, closed up many stoppings, and had made many new openings, making shorter travel for the current of air. This mine is very much troubled with water, but is now in generally good condition. James Minds, mining-boss.

Penn Colliery

Is located in Houtzdale. This is an old colliery, and is coming to its closing out. Pillar work is all they do, and it cannot last long. George Gould, mining-boss.

West Moshannon

Is located near Houtzdale. When I visited the mine on October 14, 1885, I found the ventilation very deficient, and suggested some alterations, which were attended to, and when I returned on December 10, 1885, I found it much improved. The furnace was discharging seven thousand seven hundred and seventy cubic feet of air per minute. J. P. Isenberg, mining-boss.

Atlantic Colliery

Is located near Kendrick Station, Moshannon branch of the T. and C. railroad. The coal undulates very much in this colliery, which makes drainage and hauling difficult. The ventilation is fair, and other conditions good. Robert Whitehead, mining-boss.

Ocean, No. 2,

Is a shaft, and is located at Kendrick Station on the T. and C. railroad. This shaft is connected with Atlantic colliery, which gives a second opening. No men are allowed to ride up or down the shaft, but go in and out at Atlantic. The workings are in a reasonable condition. Robert Whitehead is mining-boss.

Excelsior, No. 3,

Is a slope, and located near Kendrick Station on the T. and C. railroad. This is a new opening, and is the finest in the region. The slope has been driven three hundred and seventy-five feet, and is 15′ 5″×7′, double road and pump section, one pair of engines —— horse-power, four boilers. They are now erecting a six-foot Murphy fan. This is the first fan introduced into this region for ventilating purposes, and Fisher, Miller & Co. are to be congratulated upon introducing this improved method of ventilating shallow mines. John W. Jones is mining-boss.

Vulcan Colliery

Is located at Vulcan, the present terminus of the Moshannon branch of the

T. and C. railroad. The ventilation in this mine, when last visited, was poor, but they were driving to a given point in order to erect a furnace, which I expect to see in working order when I make my next visit. William McCann is mining-boss.

Sterling, No. 2, Colliery

Is located near Brisbin. This colliery is being fast run out. Pillar drawing is all that is being done. The works are in good condition. Richard Bower is mining boss.

Elizabeth Colliery

Is located in Brisbin. Ventilation is natural, but was sufficient for the number of men employed. Drainage good. Joel DeLong is mining-boss.

Loraine Mine

Is located near Brisbin. It is a small colliery, and was pretty much all inundated with water when I visited it. George Gould is mining-boss.

Pacific, Nos. 1 and 2,

Are located near Brisbin. Both mines are ventilated by furnace, and are in good condition. David Allgood is mining-boss in No. 1, Edward Loyd is mining-boss in No. 2.

Eureka, No. 2,

Is located near Brisbin. The most of the work that is to do here is to draw pillars. Ventilation by furnace, and is ample. Peter Cameron, junior, is mining-boss.

Sterling, No. 2,

Is located on Goss Run. This mine is drawing pillars, having reached its outside lines. It is in good condition. Richard Bower is mining-boss.

Goss Run Mine

Is located on Goss Run, and is drawing pillars. Only a few men employed. James Blade, mining-boss.

Webster, No. 1,

Is located on Goss Run, and is also drawing pillars. Works in good condition. Isidore Semindinger, mining-boss.

Excelsior, No. 1, Colliery

Is located on Goss Run, and is drawing pillars. Works in good condition. John Williams, mining-boss.

Ocean Colliery, No. 1,

Is located on Goss Run. Both drainage and ventilation were deficient when last visited, but I am informed that they are better now. Hugh Rolland is mining-boss.

Ocean, No. 3,

Is located on Coal Run railroad. This mine had not been working for

some time, and was just starting up when visited, and would be in good order in a short time. Hugh Rolland, mining boss.

Excelsior, No. 2,

Is located on Coal Run railroad. There is not much to do here but draw pillars. Drainage was deficient when I visited it, but has since been improved. Benjamin Lewis, mining-boss.

Ashland Colliery

Is located on Coal Run railroad. This colliery was in poor condition when I visited it. It has changed hands since then, and is being improved.

Drane Colliery

Is located on the Mapleton branch of the T. and C. railroad. It is a new colliery, and is in good condition. W. S. Edwards is mining-boss.

Coaldale, No. 4,

Is located on Mapleton branch of the T. and C. railroad, and is in good condition. John Hindle, mining-boss.

Columbia, Nos. 1 and 2,

Are located on Mapleton branch of the T. and C. railroad. Both mines are in good condition. B. F. Smith, mining-boss.

Laurel Run Mine, No. 1,

Is located on Mapleton branch of the T. and C. railroad, and is in good condition. John Hawkins, mining-boss.

Logan Colliery

Is located on Mapleton branch of the T. and C. railroad, and is in good condition. William Fitzgerald, mining-boss.

Mapleton Colliery,

Located on Mapleton branch of the T. and C. railroad. Drawing pillars is all that is to do here. The works are in good condition. John Allan, mining-boss.

Reading Colliery,

Located on Mapleton branch of the T. and C. railroad. This is a small colliery, not often employing over ten persons. Drawing pillars.

Coaldale, No. 2,

Located on Crowel Run, and has a few men in it drawing pillars.

Logan Ridge Colliery,

Located on Crowel Run, and is in good condition. James Leonard, mining-boss.

Atalanta Colliery,

Located on Crowel Run. This colliery was poorly ventilated when visited. They have tapped the Logan works, which will let them out. Thomas Estep, mining-boss.

Victor, Nos. 2 and 3,

Are located on Crowel Run. Both are ventilated by furnace. Drainage and ventilation are good. John Walton, mining-boss.

Lancashire, No. 2,

Is located on Crowel Run. Ventilation by furnace, and is ample. Richard Ashcroft, mining-boss.

Derby Colliery,

Located on the Campbell branch of the T. and C. railroad. This is an old colliery. Its drainage was deficient when last visited. Richard Ashcroft, mining-boss.

Colorado Colliery

Is located on the Campbell branch of the T. and C. railroad. It has not been doing much of late. Its workings are in good condition. Thomas Pilkington, mining-boss.

Glenwood Colliery

Is located on the Campbell branch of the T. and C. railroad. This colliery is in good condition. K. Colburn, mining-boss.

Victor, No. 1,

Is located on the Campbell branch of the T. and C. railroad. Ventilation was somewhat deficient when visited. It has only been partially working for some time. John Walton, mining-boss.

Lancashire, No. 1, Mine

Is located on the Campbell branch of the T. and C. railroad. It is in good condition. Richard Ashcroft, mining-boss.

Cody Ridge Colliery,

Located on the Campbell branch of the T. and C. railroad. This is a small colliery, often not employing ten persons. Stephen Sheldon, mining-boss.

Decatur Colliery

Is located on the Morrisdale branch of the T. and C. railroad. The drainage and ventilation of this mine were excellent when visited. John Todd, mining-boss.

Morrisdale Mines

Are located at the terminus of the Morrisdale branch of the T. and C. railroad. There are eight mines, namely: Nos. 7, 8, 10, 11, 12, 13, 14, and 15. They are seldom all working at one time, and, when working, mostly drawing pillars. They are generally kept in good condition. John D. Jones is mining-boss.

Rothrock Colliery

Is located on the Hawk's Run branch of the B. C. C. and S. W. railroad. This is a new opening on the double-entry system. Coal-cutting machines are at work doing all the mining. Large com-

pressors are placed outside, intended to drive the coal-cutting machines and the pumps also, where needed. This promises to be a fine colliery. John D. Jones is mining-boss.

Coaldale, No. 3,

Is located on the Hawk's Run branch of the B. C. C. and S. W. railroad. This colliery has been much troubled in the past with faults, and from its continuing to dip they have been compelled to place an engine and wire line on it to do the hauling. On account of these faults, their ventilation has not been at all times what it should be, but was soon remedied when the condition of the faults became known. William Blackburn, mining-boss.

Coaldale, No. 5,

Is located on the Hawk's Run branch of the B. C. C. and S. W. railroad, and is a new opening. Will be ventilated by furnace. Preparations are making for putting in hauling machinery. George Harris, mining-boss.

Pardee Colliery

Is located on the Hawk's Run branch of the B. C. C. and S. W. railroad. Colliery in good condition. W. C. Lingle, mining-boss.

Empire Colliery

Is located on the B. C. C. and S. W. railroad. This is a fine colliery, and I always find it in good condition. Evan Evans is mining-boss.

Hawk's Run Colliery

Is located at Hawk's Run Junction, B. C. C. and S. W. R. R. Colliery in good condition. James Dickson, mining-boss.

Gazzam Colliery

Is located near the terminus of the B. C. C. and S. W. railroad. It is a new mine, and has two openings. Size of openings, $7' \times 10'$. Ventilation by furnace, and ample. Height of coal, $3'$. Drainage is somewhat difficult. A small locomotive is used to haul the coal from the mines to the tipple. Mark Hopkins is superintendent and engineer; Alexander Dunsmore is mining-boss.

Grassflat Mines

Are located near Peale, and are three in number, 9, 10, and 11. These mines are ventilated by furnace, and are in first-class condition. The product of the three mines is delivered to one tipple and dumped into cars. Thomas Blythe is assistant superintendent.

Eureka, No. 5, Colliery

Is located on Whiteside Run, and is a slope. They have been much troubled with water here, and have had to sink a shaft to enable them to control the water. Ventilation is by furnace; formerly it was by

exhaust steam. The furnace has made quite an improvement. The works are generally in good condition. William Pollock is mining-boss.

Eureka, No. 6,

Is located on Whiteside Run. This mine is not in a prosperous condition. After driving through one fault to reach the coal, they have found it much troubled, and now they have struck one that threatens to throw the coal out of reach. The consequence is the ventilation has not been satisfactory.

Karthaus Colliery

Is located at Karthaus. The ventilation is by furnace, and is sufficient for all purposes. Drainage is good. A. G. Spears is mining-boss.

Cataract Colliery

Is located at Three Runs.

CENTRE COUNTY.

Black Diamond Colliery,

Formerly Powelton, is located at Powelton, on the T. and C railroad. A new drift has been put in, and preparations were making to have a furnace put in. Drainage was good. John O'Neil is mining-boss.

Phœnix Colliery

Is located near Osceola. There is no solid work going on at this place; drawing pillars is all. These works are in a poor condition. They were not taken care of when entries and rooms were first driven. I found the air sufficient at the outlet, but its distribution defective, and advised some alterations so as to help matters. John H. Burns is mining-boss.

Central Colliery

Is located near Osceola. It was in good condition when visited. W. S. Edwards, mining-boss.

Sugar Camp Mines

Are located near Snow Shoe. There are three mines working, Nos. 1, 2, and 3. They are all in good condition. A considerable quantity of the coal is coked, and is of excellent quality. The present owners came into possession of these works in May, 1885, and some improvements have been made, which will be detailed in another part of this report. W. A. Lathrop, superintendent.

Somerville Colliery

Is located near Snow Shoe, and is getting nearly worked out. It was in good condition when visited. Alexander Houston, mining-boss.

Tunnel Mines

Are located near Peale, and are four in number, namely, Nos. 1, 2, 3, and 4. They are all in first-class condition. Thomas Blythe, assistant superintendent.

NEW OPENINGS AND EQUIPMENTS IN CLEARFIELD COUNTY.

A new drift is put in near Munson's mill, Clearfield county, on the line of the B. C. C. & S. W. R. R. Size of opening, 13′ 6′′ × 6′. Six bee-hive coke ovens are being erected, and if coke-making is successful here, a large plant will be put in. R. C. Fishburn is in charge.

On the line of the same road, and also near Munson's mill, A. B. & J. W. Lueder have put down a slope. Size, 6′ × 11′. Built a tipple with coupled engine, twenty-five horse-power; they are ready to commence loading.

Rothrock is a new opening, operated by R. B. Wigton & Sons, and located on the Hawk Run branch of the B. C. C. & S. W. R. R. Quite extensive preparations have been made at this place to make a first-class colliery. They have built a furnace for ventilation purposes, 6′ × 7′. The Legg coal-cutting machine is at work at this place, driven by a Norwalk compressor. Two boilers keep a —— horse-power engine at work. A machine, blacksmith, and carpenter's shop have been erected, and preparations are being made to put in wire line haulage when the proper time arrives.

John Maurice is putting in a new opening near Brisbin. Size of opening, 5′ 6′′ × 6′ 8′′. He is about ready to ship coal. He has built five hundred feet of a road, and the necessary tipple arrangements.

The Langdon Brothers are putting in a new opening of the Whiteside Run branch, and expect to run coal in a short time.

At Gazzam, a double opening has been made. Size, 5′ × 7′. A good ventilating furnace has been built. One and a quarter miles of three-foot gauge railroad have been built, and one mile of grading completed and ready for the rails to another new opening. This company, the C. B. C. Company, has also built twenty tenement houses, one tipple and chute, one engine-house, one barn, one water tank, one sand kiln, one wagon and harness-shop, one carpenter's shop, one market and store-house.

Gazzam is the present terminus of the B. C. C. & S. W. R. R., and has been laid out with much care, and is the beginning, I have no doubt, of a large town, being located in the center of a large coal-field.

Coaldale, No. 5,

Is a new opening, located on Hawk's Run branch of the B. C. C. & S. W. R. R. Size of opening, 12′ × 6′ 6′′. A double road is being driven with the intention of putting in one of the systems of wire line haulage when the proper time arrives. A substantial tipple and chute have been built, also, a large stable or barn. Blacksmith and carpenter shops are substantial and convenient. This promises to be a large colliery.

IMPROVEMENTS.

Sterling Colliery.

The locomotive has been withdrawn and wire line put in its place. One

pair of engines, fifty horse-power, does the work, hauling a distance of 2141 feet. A new ventilating furnace has also been built in the same drift. Size, 3′ 6″ × 7, and is doing good work.

Excelsior, No. 3.

Three miners' houses have been built during the year, and one Champion fan put up six feet diameter. This is the first move in fan ventilation in this district.

Cataract.

Nine double houses, four single houses, one blacksmith shop, and furnace for ventilating purposes. Size of furnace, 6′ × 6′.

Eureka, No. 5.

A shaft has been sunk for drainage and air. Size of shaft, 6′ × 10′; depth 121 feet.

Elizabeth.

A considerable extension of tipple was made during the year, and a drift for water-course and air is being driven.

Webster, No. 2.

One-and-a-tenth-inch pump has been put in.

Coaldale, No. 3,

Has put up two boilers, one pair of engines, sixty horse-power, and wire line 1350 feet long, and instead of hauling one and a half tons with one mule, they are now hauling twenty-five tons.

NEW OPENINGS AND IMPROVEMENTS IN CENTRE COUNTY.

J. L. Somerville has put in a new drift, and graded railroad and put rails down; length, 2400 feet.

The Lehigh Valley Coal Company at Sugar Camp built one hundred coke ovens and rebuilt thirty ovens.

New chutes were put up at Black Diamond colliery.

DESCRIPTION OF ACCIDENTS.

January 29, 1885. THOMAS WALES was severely bruised at Eureka, No. 3, while working in his place, by coal falling on him.

February 10. At Franklin colliery, JAKE HOFFNER had his collar-bone broken by a fall of coal.

February 18. JOHN COTTER, aged thirty-four, was killed at Logan Ridge colliery by fall of coal. He had fired a shot in one part of his room, and the coal not coming down with said shot, he was undermining the other part of his room when the coal that was shot came down with the above result. He left a wife and one child.

February 5. James Goodwin, aged thirty-one, married, orphans four, was killed at Sterling, No. 1, colliery while in the act of examining, prior to taking down, rock in the head of an entry preparatory to cutting through a fault in said entry.

April 7. At Victor, No. 2, colliery Claudius Johnson had his arm broken by fall of coal. On the same day and at the same place, Austin Jacob had his leg bruised by fall of coal.

April 9. At Webster, No. 2, John Bradley had his arm broken by fall of coal.

April 24. At Victor, No. 3, colliery, R. Boardman had his collar-bone broken by fall of coal.

June 5. At Victor, No. 3, Joseph Wade was severely hurt by fall of coal.

July 23. At Victor, No. 2, colliery, William Tyler had his back sprained by fall of slate while loading his wagon.

July 25. At Morrisdale colliery, William L. Jones, aged twenty-five, single, was killed while helping to load his wagon. His father and he worked together, and while lifting a piece of coal to put on the wagon, a small piece of slate fell, striking him on the head, killing him.

August 1. At Eureka, No. 2, James Maxwell had his foot crushed by fall of coal; and at the same time and place, James Kowitch had his collar-bone broken.

August 17. At Victor, No. 2, John Hunter had his leg broken by fall of coal.

September 15. At Sterling, No. 1, Elias Anderson, aged forty-eight, married, orphans two, was killed instantly by fall of coal. Deceased and his neighbor workman had been mining in the one side of the room, and had a mining made eight feet wide and about three feet deep; two slanting glassy slips, one on each side of the eight feet mined, and meeting at the back of the mining, forming a block of coal the shape of the letter V. This was not seen until after the accident, and it, having no support, fell with the above result.

September 15. At Laurel Run, No. 1, colliery, Charles Blankley, aged thirteen, was killed while in the act of jumping on loaded cars; his foot had slipped on the rail and he fell, the wagons passing over him.

September 19. At Coaldale, No. 3, colliery, Jacob Childer and Paul Childer, aged twenty-four and twenty-two, single, were instantly killed by fall of rock while engaged drawing pillars. The roof had been working, preparing to fall all forenoon, so much so that the adjoining workmen left their places and advised them to come away also, telling them that the place was no longer safe; but they failed to take the advice. From the appearance of the place afterward they had been preparing to leave when they were caught.

September 22. At Franklin colliery, James Forsyth, aged thirty, married, orphans, one; John Meehan, aged twenty-seven, married, orphans, one;

JOSEPH ZAMBA, aged twenty-five, married, orphans, one; CHRISTIAN FOULKE, aged twenty, single, were drowned by a burst of water from old workings. A full account of this accident is given in the description of this colliery; accompanying this is a map of that part of the mine as found after the water was taken out, surveyed and drawn by L. MacDonald, mining engineer; also a copy of the coroner's inquest.

September 28. At Ocean, No. 1, colliery, WILLIAM FRIMBATH, aged twenty-nine, married. Deceased was a driver, and was engaged at the time of his death on the outside department; he had charge of four mules, and hauled from eight to ten cars; at this time he had eight, and from the position he was found in we judge that he must have been in the act of putting on or taking off brakes, as he had fallen between the wagons and was dragged some length. He was dead when found. Deceased left a wife and three children.

September 29. At Victor, No. 2, JOSEPH STRONKA had his head and shoulders bruised by fall of coal.

October 13. At Black Diamond colliery, VINCENT YESTOLL, aged thirteen, was killed by a fall of slate while standing looking at his father working. Mr. Yestoll was opening up a new room, and while taking some more off the corner in order to let his road go in, a piece of slate overhead gave way, with the result as stated.

November 2. At Excelsior, No. 1, colliery, JOHN SMITH, aged twenty-two, married, children, three. Deceased was working with four others drawing pillars, and they had a mining put in about twelve feet long and three feet deep, and had a hole drilled and tamped, and one of them was back getting the squib preparing to fire the shot, when, for some reason unknown to any one, Smith went under the mining, and suddenly about ten feet in length of the coal gave way, killing him instantly.

November 10. At Sterling, No. 1, colliery, JOHN LEWIS had his leg broken by being caught between cars.

November 11. WILLIAM FIFE, aged twenty-five, single, was killed at Franklin colliery by a fall of coal. He and a boy named Rhodes were working together; they had made a mining of about twelve feet in length and about three and one half feet deep on the side of a rib. They had had a sprag or support in the middle of said mining; this support he took out, and went under a portion of it again with the intention, apparently, of mining it deeper, when the whole mass gave way, falling on him, killing him instantly.

November 21. At Cataract colliery, JOHN LUTHER was severely hurt by trying to jump on empty cars going up the plane from the chutes.

November 23. At Grassplat mines, No. 10, GUST BERGIN had his foot and leg bruised by fall of rock.

December 2. At Eureka colliery, No. 5, JAMES MOWAT, aged sixty, married, was killed by a fall of rock. Deceased was in the act of setting up a prop

on the side of his road; there is in this colliery a stone in the middle of the coal, running from one to two feet thick, and this stone has to be taken down to get the height for the road. A hole was drilled ready to fire in this stone or brushing, and in order to keep the shot from spreading up the room, it was necessary a prop should be set at where the roadside would be, and in doing this a part of the rock or slate fell, with the above result.

December 8. At Ocean, No. 2, colliery, —— ——— had his leg broken by fall of coal.

December 15. At Tunnel mines, No. 2, Alexander Archibald had his thigh broken in two places by fall of coal.

December 22. At Empire mine, John Jarret had his leg broken by fall of slate.

GENERAL RULES.

Superintendent's Duties.

A. He shall strictly attend to the carrying out of the requirements of the first, second, third, and fourth sections of the mining law, and perform such other duties as the said act requires of him.

B. He shall require a report of the general condition of the mine frequently during the year from the mining-boss.

C. He shall furnish promptly all supplies and materials for the successful running of the mine when ordered by the mining-boss or outside boss.

Duties of the Mining Boss.

1. It shall be the duty of the mining-boss to direct and supervise the whole of the inside work of the mine; to instruct the workmen in their several duties, and to see that all the rules prescribed for each class of workmen under his charge are implicitly obeyed.

2. The ventilating powers for producing the ventilation of the mine shall be under his charge and direction.

3. To practice due economy in the use of all supplies for the mine and prevent loss or waste of the same.

4. To keep all headings, airways, and rooms as straight as possible, and pillars of uniform and sufficient thickness, and, where necessary, to see that sights to the workmen are furnished.

5. To have all stoppings along airways properly built and kept free from leaks, etc.

6. To provide that all main airways and headings for the passage of the ventilating currents contain an area of forty square feet, and cross-headings thirty-five square feet, where practicable; that they be made as nearly square as possible, and that every ventilating passage be at all times kept clear of every impediment to the free circulation of the air.

7. To order immediately the securing of a dangerous working-place, either by taking down or propping the loose material, and to stop the mining of coal in such place until it is made safe and secure; and he must see that every order he gives in such case is obeyed immediately.

8. To see that the doors along the air passages are not opened oftener than necessary, and that they are closed every evening after cessation of work.

9. To measure the air-current properly and report the measurements to the mine inspector, as required by the fifth section of the mining law.

10. To see that all roads are kept properly cleaned and drained and in a safe condition for the workmen and mules.

11. To see that horses or mules under his charge are not overworked or unnecessarily whipped or abused by the drivers, nor driven up steep grades without occasional rests, and that drivers are at the stables early enough in the morning to take care of their mules, etc., before beginning work at the appointed time.

12. He shall not allow door-boys to leave their doors to ride with the driver.

13. He shall see that all miners undermine their coal properly before blasting down, and that no coal and material or lost by premature or improper drawing of pillars.

14. Whenever he cannot personally carry out the provisions of the mining act so far as they pertain to him, the superintendent shall authorize him to employ a sufficient number of competent persons to act as his assistants, who shall be subject to his orders.

15. He shall be particular in seeing that props and caps for the support of the roof are supplied to his men at all times, and that they are properly used where needed, and not lost by being left in the ditches or gob, or wasted in any other way.

16. The mining boss shall cause to be constructed a black-board or slate large enough, and have it placed in the office or other building at or near the main entrance to the mine; upon which shall be the number used by every miner, and space sufficient to that number so that the miners or other workmen can write plainly the quantity of props, their lengths and sizes, number of caps and other ti nbers, and the date of the order, etc.

Duties of Outside Foreman.

17. It shall be the duty of the outside foreman, generally, to direct and supervise all outside work of the colliery, to instruct his workmen in their several duties, and to see that all rules prescribed for their government are obeyed.

18. That hoisting ropes are not used when in a dangerous condition, and are preserved from chafing, and tarred at frequent intervals.

19. That all new ropes are oiled and tarred before being put in use.

20. He shall see that mine props and caps are delivered at every mine mouth, handy for loading on cars, and that mine rails, lumber, and other materials are supplied as needed; at the same time he shall exercise an economical care in the use of all supplies and materials, and allow no waste of the same.

21. All outside employés, stock, tools, and materials are in his charge.

Duties of the Weigh-Master.

22. He shall have general charge of the dumpers, loaders, and teamsters hauling coal, and shall see that the coal is properly handled on the chute, and loaded in the cars.

23. He shall see that the coal is received from the miner in proper condition, free from sulphur, slate, rock, or other unmerchantable material, as far as practicable.

24. He shall weigh or supervise the weighing of the coal, and see that the empty cars are weighed at frequent intervals, if necessary; and that just weight is taken and allowed in all cases. He shall also give due and prompt attention to all inquiries from miners after lost cars, &c.

25. He must report to the superintendent, immediately, any miner who sends out an inordinate amount of sulphur or dirt in his coal.

Duties of the Miner.

26. That the miner shall mine and load his coal at whatever rates may be agreed upon. He shall put up all props necessary for his own safety and that of his working-place, and leave his order for props, caps, &c., with the mining-boss, or at the place set apart for that purpose, at least one day in advance of his needing props and caps.

27. Every miner must examine his working-place immediately after entering it in the morning, and make it perfectly safe before he begins his work. He shall make a like examination and secure it properly and safely before quitting it.

28. He shall keep his working-place at all times well propped, bar down all doubtful or dangerous pieces of loose material, and obey an order from the mine-boss in respect to these matters immediately.

29. It shall be the duty of every miner to undermine his coal properly before blasting or wedging down, and to use every precaution toward sending out his coal as free from sulphur, slack, clay, rock, or other impurities as possible.

30. He shall use great caution in the care and handling of his powder, and when making a cartridge he shall not keep his lamp on his head nor have a lighted pipe or cigar in his mouth. He shall place his lamp at least four feet away from him, and at a point at which the air would carry a spark away from him.

31. When charging a hole for a blast, if his cartridge sticks, he must remove it carefully and reduce its size or enlarge the hole so that he may push it in easily. He must not ram or force the cartridge with a drill.

32. In driving cross-cuts through pillars, before firing his blast the miner must give ample warning to the workmen in the room toward which he is working, so that they may find a place of safety.

33. He must be careful not to return to his working-place too soon when a shot seems to have missed fire.

34. After a shot has been fired, the miner must exercise great care in examining the roof and coal, and securing them safely before resuming work.

Duties of Engineers.

35. It shall be the duty of the engineer to keep a careful watch over his engine and machinery, pumps, boilers, &c., to see that the boilers are properly supplied with water, cleaned and inspected at proper intervals, and that the steam pressure does not exceed, at any time, the limit allowed by the superintendent. He shall exercise particular care and caution in handling his engine in hoisting or lowering from any shaft or slope when men are ascending or descending.

36. The engineer in charge of any ventilating fan must keep it running at such speed as the mining-boss shall direct, when the mine is idle as well as when being worked, and upon no account shall he slacken its speed, except by proper direction. If repairs to the fan or machinery become necessary, he must give timely notice to the mining boss, and await his answer before stopping it.

37. Engineers shall not allow persons to loiter in the engine-room; and they must not hold communication with any one while in the act of handling their engines. They will also keep a strict watch over the fireman and see that he performs his duty faithfully.

Duties of the Barn-Boss.

38. It shall be the duty of the barn-boss or stable-man to take care of the mine-stock generally, and to see that all the animals are fed, watered, and attended to in a proper manner.

39. He shall keep a careful record of the amount of oats, feed, and hay fed daily, and report to the superintendent immediately any waste or loss of the same.

40. He shall examine the animals daily, as they come from work, and report any hurt or damaged.

41. He shall not allow any animal to be ill-treated or overworked, or to leave the barn when unfit for work, and he shall report such to the mining-boss immediately.

42. He must be particular to dress daily all animals suffering from sore shoulders, cuts, and bruises, and, except for such complaints, he will not administer any medicine unless by special permission of the superintendent or mining-boss.

Duties of the Driver and Runner.

43. It shall be the duty of the driver to take proper care of his horse or mule, and see that it is properly fed and watered when out of the stable.

44. He must not whip or abuse it unnecessarily, nor allow any other person to do so.

45. He must drive his animal carefully, and when ascending steep grades allow it to rest frequently.

46. When he has occasion to leave it, he must be careful to see that it is left in a safe place, secure from runaway cars or other dangers.

47. No person but the driver will be allowed to take his horse or mule to or from the stable, and while going or returning he must not drive his animal faster than a walk.

48. The runner or driver must exercise great care while running or drawing cars over a graded road, and sprag the cars sufficiently to prevent them from running on himself or the mule.

49. Any driver who injures a mule through carelessness, or any other unaccountable way, will remain idle until his mule is fit for work again.

General Rules.

50. No person, except the driver or runner, is permitted to ride on cars inside the mines.

51. The burning of car oil or "black strap," or any oil other than "Miners' Extract. No. 1, Oil," is forbidden. Drivers must carry and burn their own oil. Miners are requested to report to the mining-boss any stealing or begging of oil from a miner, or accepting money from a miner for cars, &c.

52. No person is allowed to work in or pass through or into any heading or tunnel through which a mine locomotive runs.

53. When the mine operations are stopped for a day or part of a day, the mining-boss will see that day men in their charge stop work, and no one be permitted to work unless specially ordered to do so by the superintendent.

54. No boy under twelve years of age shall be allowed to work in any mine, and before boys are hired, proof must be had of their age by certificate or otherwise.

55. Written or printed rules defining the duties of all persons in or about the mines shall be kept posted in a conspicuous place.

56. All persons are forbidden to ride on cars on any slope or plane.

57. Any person who opens a ventilating door must close it properly before leaving it.

58. All employés are requested to notify the mining-boss of the unsafe condition of a working-place or traveling-ways, or of damage to doors brattices, or stoppings, or of obstructions to the air-passages, if known to them.

59. Tamping bars must be tipped with at least six inches of copper or other soft metal when used for ramming a cartridge in a hole in coal, slate, or rock.

60. A charge of powder or other explosive in slate or rock which has missed fire shall not be withdrawn or the hole re-opened.

61. No person shall be employed to blast coal or rock unless the mining-

boss is satisfied that such person is qualified by experience and judgment to perform the work with ordinary safety.

62. The mining-boss shall construct safety-blocks or some other device for the purpose of preventing cars from falling into a shaft or running away on a slope or plane, be placed at or near the head of every shaft, slope, or plane, and said safety-blocks or other device must be maintained in good working order.

COMMONWEALTH OF PENNSYLVANIA, *Clearfield county,* } *ss:*

An inquisition indented and taken at Houtzdale in the county of Clearfield the 24th day of September, 1885, before me, J. A. Moore, coroner of the county aforesaid, upon the view of the bodies of John Meehan, James Forsythe, Christian Foulk, and Joseph Zamba, then and there lying dead, upon the oaths of C. K. McDonald, William McVey, William Barter, William Pickard, James Ward, and W. A. Chase, good and lawful men, who, being duly sworn on the part of the Commonwealth, when, where, and after what manner the said John Meehan, James Forsythe, Christian Foulk, and Joseph Zamba came to their deaths, and after adjourning from the 24th day of September to the 28th day of September, and again from the 28th day of September to the 5th day of October, 1885, and continuing their inquiries until the 6th day of October, 1885, and after hearing all the accessible evidence obtainable do say that John Meehan, James Forsythe, Christian Foulk, and Joseph Zamba came to their deaths in the Franklin colliery in the borough of Houtzdale, in the county of Clearfield, and State of Pennsylvania, on Tuesday, September 22, 1885, by drowning. And also find that the cause of the drowning was by cutting into old workings not shown on the working map of the Franklin colliery, thereby causing large quantities of water to escape, which water caused the death of the above-mentioned men, said working map having been made by an engineer formerly in charge of said Franklin colliery, and not by the present men in charge, but that the present men in charge should have used more precautions by way of keeping bore-holes ahead of them as they approached the old workings, and the jury also believe that it was the duty of the mine inspector, knowing that the cross-heading of Waterloo heading, in which the men were drowned, was near old workings, to have ordered the men operating the Franklin colliery to keep bore-holes in front of them, in order that the lives of the employés of the colliery would not be endangered, and the jury find also that the working map of the Franklin colliery was grossly incorrect in that portion showing the workings that contained the water which drowned the above-mentioned men.

In witness whereof, as well the aforesaid coroner as the jurors aforesaid

have to this inquisition put their hands and seals on the day and year and at the place first above mentioned.

James A. Moore,	[seal.]	William Barter,	[seal.]
C. K. McDonald,	[seal.]	James Ward,	[seal]
William McVey,	[seal.]	W. A. Chase,	[seal.]
William Pickard,	[seal.]		

Received, Houtzdale, October 6th, 1885, of J. A. Moore, coroner, our fees on the within inquest.

W. A. Chase, William Pickard, William McVey.
James Ward, William Barter,

Evidence.

Peter Foulk, aged twenty-three, reside in Houtzdale, Clearfield county, and by occupation, ——. I was working in Franklin colliery on Tuesday, 22d day of September, 1885. I heard a noise in the heading.

Three of us were standing loading a car, I ran over top of car and my light went out. Jack Meehan, Christian Foulk, and myself were together; James Forsythe was behind us; Jack Meehan was ahead of me, and my brother had hold of my shirt, and then I found there was something ahead of me. I thought it was a car and I got over it, the water was over my head, and I did not see the others afterward, and I made my escape. I was working in a cross-cut; I was working about fifty yards from where men cut through to the water. I did not know that there was any water near to where I was working, and did not suspect any danger. There was one man bailing water on the main heading opposite the place where it broke in, and another nearer the face of the heading.

Henry Abello understood that there was an old heading ahead of him, but did not know it was so near. None of the bosses told me that there was an old working in front of us.

Alfred Olson, aged thirty years, by occupation a miner, reside in the borough of Houtzdale, being duly sworn, deposes as follows:

I work at the Franklin colliery. I was at the colliery between six and seven o'clock, on Tuesday morning, 22d day of September, 1885. I was working at the side track near where men were drowned, (about two hundred feet;) when I got to my place, the two French boys, Harry and Pete, and the Dane, came up to me; they appeared to bein a hurry and went out; I went down to the pump. The water was not then up to the pump. There I met Foster, the mine-boss, and he went down in the water as far as he could.

I knew there were men drowned, but did not know who they were nor how many. Harry and Pete told me that there were men in there. And further saith not.

Alfred Olson.

John Summerville, aged thirty-seven years, by occupation a miner, residing at Snow Shoe, Centre county, Pa., being duly sworn, deposes as follows:

I work in the Franklin colliery at Houtzdale; from 1878 to 1880 I worked in the old Dip heading. It is the same heading that was cut into when water came out said to have drowned men on September 22, 1885. I knew it was the same heading that I had worked in by the lower breast on right-hand side of heading. The old dip heading was open when I left there. Alexander Thompson was mining-boss and James Cameron was superintendent when I worked at Franklin. The old dip heading was a branch heading of the main gangway. I do not recollect of the old dip heading being surveyed while I was there, although it might have been surveyed. And further saith not. JOHN SOMMERVILLE.

Thomas H. Forsythe, aged thirty eight years, by occupation a miner, residing at Munson's, Clearfield county, Pa., being duly sworn, deposes as follows:

I worked in Franklin colliery when Alexander Thompson was pit-boss and James Cameron was superintendent, and quit about two years ago last spring, when Eph. Foster was pit-boss and C. B. Finley was superintendent. I was in the Franklin colliery this morning (September 28, 1885,) and saw the place where water came from that drowned the men on September 22, 1885. I worked for some time in the heading where the water came from, and also in one of the rooms turned from the heading. I recognized the room I used to work by a slip in the room, also by the character of my own work. I don't recollect of seeing any surveyors in while I was working in the old dip heading, or the room I worked in turned from the dip heading. The reason I quit working in the old dip heading was because the water came in between the bony and top, also through the coal. One of my brothers was drowned in the Franklin colliery on September 22, 1885. And further saith not. THOMAS H. FORSYTHE.

John Argyle, aged fifty years, by occupation a merchant, residing in Houtzdale, being duly sworn, deposes as follows:

I worked in Franklin colliery from 1876 to some time in 1882. First, I worked under James Cameron as superintendent and John Cameron as pit-boss; then Alexander Thompson became pit-boss; then Morris Ramsey became pit-boss, and then Eph. Foster became pit-boss and C. B. Finley, superintendent. And further saith not. JOHN ARGYLE.

Daniel Mulson, aged twenty six years, by occupation a driver, residing in Woodward township, Clearfield county, Pa.

I worked in Franklin colliery on September 22, 1885. I left the colliery at 6.15 o'clock, A. M. I was hauling from same heading in which John Meehan, James Forsythe, Christian Foulk, and Joseph Zamba were drowned. When I left hauling in the morning, I did not hear of any trouble, and did not think of any danger. And further saith not.

DANIEL MULSON.

John Henshaw, aged forty-seven years, by occupation a miner, residing in

Woodward township, Clearfield county, Pa., being duly sworn, deposes as follows:

I worked in Franklin colliery for about six weeks in the year 1882. I was in Franklin colliery on the 22d and 23d of September, 1885. On Tuesday night, when I was coming out, I heard Foster telling some men that according to their maps they were beyond all workings into solid coal. He also said that he was in the heading that the water broke from in the morning, and that he stepped the distance in and found it thirteen steps to the face, and he said that he intended to drive twenty steps and then begin to bore. And further saith not.

Witness: W. A. Chase. John Henshaw.

William Abernethy, aged forty-nine years, by occupation a miner, residing in Houtzdale, being duly sworn, deposes as follows:

I work in Franklin colliery, having been working there for six years. I worked in the Waterloo heading when the men were drowned on September 22, 1885. I worked in the back heading. I never had any suspicion of danger from water after passing the heading where they tapped the water. And further saith not.

Witness: W. A. Chase. William Abernethy.

Thomas Booth, aged thirty-one years, by occupation a miner, residing in Woodward township, Clearfield county, Pa., being duly sworn, deposes as follows:

I work in the Franklin colliery; have worked there off and on for six years. When I first worked at Franklin colliery, Alexander Thompson was pit-boss, and James Cameron, superintendent. I worked on the Waterloo heading on the back heading off the Waterloo heading. I last worked there on the 21st day of September, 1885. I worked on the same cross-heading through which the water broke through. The last day I worked there I noticed a little more water on the bottom, but as the cross-heading was dipping toward the face, I attributed the increase of water to that cause. The last shift I was in we shot the coal. There was no boring done ahead of us, and we did not think it necessary, as we thought we were working in solid coal. There were three shifts working on the cross-heading I was on, Harry and Peter Abillio, William Davidson, and David Robertson, and Isaac Smith and myself. I never heard any person express doubts as to the safety of working where I was. And further saith not.

Thomas Booth.

John B. Hughes, aged twenty-eight years, by occupation a miner, resident of Houtzdale, being produced and sworn, deposes as follows :

I have been working at Franklin colliery for about three years. I was working at Franklin on September 22, 1885, on a cross-heading turned off the Waterloo heading, about twenty feet from the cross-heading where water broke through that caused the drowning of the men. We were troubled with water in the cross-heading where I waws orking; it came through the roof and through the coal ; it was wet, but did not increase

much as we drove in. I did not expect any danger when I was working. I came off on Monday night at eleven o'clock, I mean September 21, 1885. And further saith not. JOHN B. HUGHES.

James Little, aged twenty-five years, by occupation a miner, resident of Houtzdale, being produced and sworn, deposes as follows :

I have worked at Franklin colliery for over three years. I was working at Franklin on Monday, September 21, 1885. I left the colliery at eleven o'clock, that night. I was working in the back heading where the men were drowned on September 22, 1885. I heard Foster, the pit-boss, say that there was water in there, but that we were past it. I never anticipated any danger after we tapped the water above where the Abillios cut through. And further saith not. JAMES LITTLE.

William Allison, aged twenty-six years, by occupation a miner, resident of Houtzdale, being duly sworn, deposes as follows :

I worked in Franklin colliery from 1876 to 1880; then I was away four years and came back, and have worked in Franklin colliery for the last six months. I have been working in the Waterloo heading, I worked in the back heading where the men were drowned on Monday, September 21, and left at eleven o'clock, P.M. I did not anticipate any danger from water as we were told that we were past it about two hundred feet and left it to the right of us. I worked in a room turned from the old dip or Cooper heading. When Alexander Thompson was pit-boss, I was in the first or second room from the face or south side. While I worked in the old dip heading I never saw any surveying done. And further saith not. WILLIAM ALLISON.

C. B. Finley, aged forty-one years, by occupation a civil and mining engineer, resident of Philipsburg, Centre county, Pa., being duly sworn, deposes as follows :

I am the superintendent of Franklin colliery. Have been superintendent of Franklin colliery since February 1, 1881. I have entire charge of the workings of the colliery. I knew from an examination of a map of the colliery that there was a large body of coal lying inside of the large rock fault. In order to obtain the coal, we drove a heading parallel with the fault in a south-easterly direction. There were two headings represented in the map which had been driven a number of years ago, I don't know when, which we supposed were lying full of water. We recognized this fact, and endeavored to avoid these headings or draw the water from them. We succeeded in doing this in the case of the first heading, by approaching it with bore-holes in advance of the work, then continued our main dip heading, called Waterloo, until we considered we had passed the second heading of the old works. Believing then that we had nothing but solid coal before us, we advanced our workings with all confidence, and even turned off a cross-heading. When the back heading to this cross-entry had advanced about thirty-five or forty feet, it encountered old works of which we had no previous knowledge, or even suspicion, and let in the flood of

water which drowned the four miners. When we had any idea that we were approaching old works, we always kept a bore-hole in advance of the room or entry; but, believing that we were in solid coal, this precaution appeared needless. I considered that I had every reason to trust in the accuracy of the plotting of these old works, as I believed the surveys to have been made by Mr. James R. Cameron, and I had occasion some seven or eight years ago to test the accuracy of his surveys in other portions of this mine and found them remarkably correct, to which fact I have already testified in the court at Huntingdon.

Since the accident has happened, I find that the cause of it was that these old works had been advanced about one hundred and fifty feet since the last survey was plotted on the map by former engineers in charge. I had no possible means of knowing this fact, as a large portion of this old heading had been drawn back and the roof fallen, previous to my taking charge of the mines. I was aware of this fact long before we started the dip-heading, as it endangered the safety of our main gangway. C. B. Finley.

E. A. Foster, aged thirty-eight years, by occupation a pit-boss, resident of Houtzdale, being duly sworn, deposes as follows:

I am now the pit-boss of Franklin colliery; have been pit-boss at the colliery since about March 1, 1881. I was in the Waterloo heading on the morning of September 22, 1885, about the time the four miners were drowned. I went into the Waterloo heading in the morning about six o'clock. I went into the cross back-heading where the Abillio boys worked, from there I went to the back-heading of the Waterloo and looked around and came out onto the main entry again, and then went back into the back cross-heading where the Abillios were, on my return out, and was with the boys a short time, and then came out and went into the main cross-entry and stepped the distance of the cross-entry, and found it to be thirteen steps, and then went from there to the steam pump. In a very short time, Peter Foulk came up and met me when I was just leaving the pump and said to me, that they had broken into water. I ran down the heading until I met the water, and waded on down until I saw that I could get no farther, and then I came outside and told the men that those men were drowned in "Waterloo." I frequently visited the place where the accident occurred on account of having three shifts on the place. I was there on an average of at least once a day. I did not anticipate any danger, as I thought the map was correct, as I had no reason to think otherwise, as I had worked from the same map since I have been in the colliery, I am not an engineer. And further saith not. E. A. Foster.

James Barr, aged twenty-three years, resident of Houtzdale, and by occupation a miner, being duly sworn, deposes as follows:

I have been working in the Franklin colliery for the past year. I worked in the Waterloo heading; I had no idea there was any danger from water. And further saith not. James Barr.

Andrew Fyfe, aged forty-three years, by occupation a miner, resident of Houtzdale, being duly sworn, deposes as follows :

I have worked in Franklin colliery for about three and one-half years. I was working at Franklin colliery on Saturday, September 19, 1885. I worked in the cross-cut nearest the face of the Waterloo heading. I did not anticipate any danger from water. And further saith not.

ANDREW FYFE.

Bartlett Bennett, aged fifty-one years, by occupation a miner, resident of Houtzdale, being duly sworn, deposes as follows :

I work in Franklin colliery. Have worked in Franklin for about ten years. I know the Cooper or old dip-heading. I worked in it last in the spring of 1879. At that time James Cameron was superintendent and John Cameron was pit-boss. The Cooper heading was worked in 1880, when Morris Ramsey was pit-boss, and he ordered me to take up two partings in the Cooper heading. There were no rooms working below when I took the partings, as they had been taken up previously. I have seen Morris Ramsey surveying in the mines, but never saw him in the Cooper heading doing any surveying. I believe the Cooper heading fell the same night that I took out the partings ; it was about forty yards from the main gangway to where I lifted the partings on the Cooper heading. I think the pillars were drawn in the Cooper heading at the time Morris Ramsey was pit-boss. There were cribs put up to protect the main gangway near the entrance of the Cooper heading about the time that Morris Ramsey left as pit-boss. I think that Ramsey had charge at the time the cribs were put in. I lifted the partings I spoke of in the fall of 1880. At that time the entry stumps were all drawn. And further saith not. BARTLETT BENNETT.

William Watchman, fifty-eight years of age, by occupation a miner, resident of Houtzdale, being duly sworn, deposes as follows :

I have worked in the Franklin colliery for about eleven years. I do not know a heading in Franklin known as the Cooper or old dip-heading. And further saith not. WILLIAM WATCHMAN.

John Gallagher, aged —— years, by occupation a miner, resident of Woodward township, being duly sworn, deposes as follows :

I worked at Franklin colliery the greater portion of the time since August, 1876. I worked in the old dip-heading. I worked at driving the heading for about two months. I drove the heading up to the face and did the last work on it ; then I came back and worked in the last room on the right-hand side going south. I don't remember of seeing any one surveying while I was working in the Cooper or old dip-heading. When I worked in the heading Sandy Thompson was boss. I worked there in 1879. And further saith not. JOHN GALLAGHER.

Joseph Barr, aged thirty years, by occupation a miner, and resident of Houtzdale, being duly sworn, deposes as follows :

I work in the Franklin colliery. Have worked there for the past eighteen months. I worked in the Waterloo heading. I worked there on Monday, September 21, 1885, and quit at three o'clock, P. M., on that day. I did not anticipate any danger from water where I was working, and never heard of any other person being afraid of water. And further saith not.

Witness : W. A. Chase. Joseph Barr.

H. H. Hartman, aged forty years, by occupation a civil and mining engineer, and resident of Houtzdale, being duly sworn, deposes as follows :

I have done work in the Franklin colliery as an engineer in the years 1876,-'77,-'78. (Mr. Hartman produces a map, which he testifies was correct at the time it was made and said map does not correspond with the working map of Franklin colliery.) And further saith not. H. H. Hartman.

John M. Watt, aged fifty-eight years, resident of Philipsburg, Centre county, Pa., being duly sworn, did depose as follows :

I am the mine inspector of the Eighth bituminous district. I visited the Franklin mines on the 10th day of September, 1885. I found C. B. Finley superintendent, and E. A. Foster mining-boss. The ventilation was done by furnace and discharging 21,060 cubic feet per minute, and the works in general were in good condition. I was at the face of the Waterloo heading, men were working there and it was very wet. I was shown about the place where these two cross-headings were to start from by Mr. Foster. He told me much the same as he has already related as to Mr. Finley and he consulting as to where to put these entries. I went with him to the map after viewing the mine, and then saw about the place where he would start these entries. I called his attention as to the proximity of that dip-heading and asked what he would do when he came to this point ; I mean the point opposite the dip-heading, as shown on the map. He told me they would turn at right angles from the cross-entry and advance to the old heading with bore-holes ahead of them. I was satisfied that they were perfectly safe, being assured from them and the maps that that was the only old workings in that vicinity. I knew no more of it until the morning of the 22d of September. I was telephoned to at Philipsburg, that four men were drowned in Franklin, and repaired to the Franklin mines as soon as possible thereafter. I found them beginning to take water out that accumulated, and stayed there day and night until the men were got out. Upon being assured that the back-heading off the cross-heading had tapped water, I again looked at the maps and became convinced that either the present workings or the old workings were wrongly mapped, and to prove that question I telegraphed, on the Monday following, L. McDonald, mining engineer, of Altoona, to come and make a survey of the section of the mine where the accident occurred. He came next day and made that survey, and I accompanied him and saw that all the open space there was discovered there was taken, and he gave me the map as you have seen on the table here. And further saith not. John M. Watt.

TABLE I.—*Showing location of collieries in the Eighth Bituminous Mine District.*

NAME OF COLLIERY.	Name of Company.	Location—County.	Name of Superintendent.	Post-Office Address.
Atlantic,		Clearfield.		
Ashland,		do.		
Atalanta,	Welch, Epley & Co.,			Osceola Mills, Clearfield county.
Black Diamoud,	W. J. Jackson,	Centre,		Retort, Centre county.
Columbia, Nos. 1 and 2,	J. L. Mitchell,	Clearfield,	J. L. Mitchell,	Tyrone, Blair county.
Colorado,	Hoyt & Jackman,	do.		Philipsburg, Ceutre county.
Coaldale, Nos. 3, 4, and 5,	D. W. Holt & Co.,	do.	D. W. Holt,	do. do.
Cataract,		do.		
Central,	T. C. Heims,	Centre,		Osceola Mills, Clearfield county.
Drane,	do.	Clearfield,		do. do.
Derby,	Thomas Barnes & Bro.,	do.	T. Barnes,	Philipsburg, Centre county.
Decatur,	Nuttall & Co.,	do.	G. W. McGuffey,	do. do.
Empire,	Empire Coal Company,	do.	John Ashcroft,	do. do.
Eureka, Nos. 2, 3, 5, and 6,	Berwin, White & Co.,	do.	W. A. Crist,	Osceola Mills, Clearfield county.
Excelsior, Nos. 1, 2, and 3,	Fisher, Miller & Co.,	do.	Thomas Richards,	Houtzdale, Clearfield county.
Elizabeth,	Elizabeth Coal Company,	do.	C. F. Blair,	Brisbin, Clearfield county.
Franklin,	Kittauning Coal Compauy,	do.	C. B. Finley,	Philipsburg, Centre county.
Glenwood,	William Morris & Co.,		C Campbell,	Altoona, Blair county.
Grass Flats,	Clearfield Bituminous Coal Company,	Clearfield,	George H. Platt,	Peale, Clearfield county.
Gazzam,	do. do.	do.	do. do.	do. do.
Goss Run,	Berwin, White & Co.,	do.	W. A. Crist,	Osceola Mills, Clearfield county.
Hawk's Run,	Jones & Mull,	do.		Philipsburg, Centre county.
Karthaus.				
Loraine,	Reakirt Bros. & Co.,	Clearfield,	David E. Conrad,	Houtzdale, Clearfield county.
Logan Ridge,	H. J. Smith,	do.	H. J. Smith,	Osceola Mills, Clearfield county.
Logan,	H. Liveright & Co.,	do.	H. Liveright,	do. do.
Laurel Run, Nos. 1 and 2,	Nuttall, Bacon & Co.,	do.	George W. McGuffey,	Philipsburg, Centre county.
Lancashire, Nos. 1 and 2,	T. Barnes & Bros.,	do.	T. Barnes,	do. do.
Morrisdale, Nos. 7, 8, 10, 11, 12, 13, 14, and 15,	R. B. Wigton & Sons,	do.	W. H. Wigton,	do. do.
Mapleton,	H. Liveright & Co.,		H. Liveright,	Osceola Mills, Clearfield county.
Moshannon,	Moshanuon Coal Cmpany,	Clearfield,	P. B. Zeutmyer,	Hontzdale, Clearfield county.
Ocean, Nos. 1, 2, and 3.				
Phœnix,	J. H. Orvis & Co.,	Centre,	J. H. Burns,	Osceola Mills, Clearfield county.
Penn,	Reakirt Brothers & Co.,	Clearfield,	David E. Conrad,	Houtzdale, Clearfield county.
Pardee,	Duncan, Lincoln & Co.,	do.	W. C. Lingle,	Philipsburg, Centre county.
Pacific, Nos. 1 and 2,		do.		
Reading,	H. Liveright,	do.	H. Liveright,	Osceola Mills, Clearfield county.
Rothrock,	R. B. Wigton & Sons,		H. W. Wigton,	Philipsburg, Centre county.
Sterliug, Nos. 1 and 2,	Robert H. Powell & Co.,	Clearfield,	James Campbell,	Houtzdale, Clearfield county.
Sterliug, No. 2,	do. do.	do.	do. do.	do. do.
Sugar Camp, Nos. 1, 2, 3 & 8,	Lehigh Valley Coal Company,	Centre,	W. A. Lathrop,	Snow Shoe, Ceutre county.
Somerville,	J. L. Somerville & Co.,	do.	J. L. Somerville,	do. do.

Tunnel Mines, Nos. 1, 2, 3, and 4,	Clearfield Bituminous Coal Company,	do.	George H. Platt,	Peale, Clearfield county.
Victor, 1, 2, and 3,	Victor Coal Company,	Clearfield,	John Walton,	Philipsburg, Centre county.
Vulcan,	R. B. Wigton & Sons,	do.	W. H. Wigton,	do.
Webster, No. 1,	J. C. Scott & Sons,	do.	Philip Hartman,	Summerhill, Cambria county.
Webster, No. 2,	Houtzdale Coal Company,	do.	C. W. Van Dusen,	Houtzdale, Clearfield county.
West Moshannon,	Moshannon Coal Company,	do.	P. B. Zentmyer,	do.

TABLE II.—*Showing Character of Coal, Production, Number of Employés, Days Employed, Casualties, &c., in the Eighth Bituminous Mine District, for the year ending December 31, 1885.*

COLLIERIES.	Operators.	Character of Coal, Anthracite or Semi-Anthracite, Bituminous or Semi-Bituminous.	Drift, slope, or shaft.	Number of inside workmen.	Number of outside workmen.	Total employees.	Number of days worked inside.	Number of coke ovens.	Number of horses and mules.	PRODUCTION.		CASUALTIES.				
										Number of tons produced.	Number of tons shipped.	Killed inside.	Killed outside.	Injured inside.	Injured outside.	Total killed and injured.
Atlantic,	Berwin, White & Co.,	Semi-bituminous,	Drift,	613	56	669	200	...	...	216,536	...	...	...	...	...	...
Ashland,	do. do.	do. do.	do.	...	...	...	...	...	...	...	...	...	...	...	...	...
Atalanta,	Welch & Epley,	do. do.	do.	50	7	57	287	...	6	60,000	...	...	...	...	...	...
Black Diamond,	W. J. Jackson,	do. do.	do.	50	5	55	300	...	7	42,116	...	...	...	...	...	1
Columbia, Nos. 1 and 2,	J. L. Mitchell & Co.,	do. do.	do.	57	3	60	187	...	6	43,584	...	...	...	...	...	...
Colorado,	Hoyt & Jackman,	do. do.	do.	14	2	16	147	...	3	12,204	...	...	...	...	...	...
Cody Ridge,	H. K. Grant,	...	...	...	...	...	...	...	...	8,000	...	...	...	...	...	...
Coaldale, No. 3,	Holt & Chipman,	...	...	118	22	140	246	...	10	88,290	...	2	...	...	...	2
Coaldale, No. 4,	do. do.	...	...	46	4	50	215	...	2	41,612	...	...	...	...	...	...
Coaldale, No. 5,	Berwin, White & Co.,	...	...	67	6	73	121	...	...	23,356	...	...	...	...	...	...
Cataract,	T. C. Heims,	Semi-bituminous,	Drift,	80	14	94	260	...	9	50,938	...	...	...	...	1	1
Central,	do. do.	...	...	24	3	27	138	...	2	11,777	...	...	...	...	...	...
Drane,	D. W. Holt,	...	...	53	4	57	234	...	3	42,679	...	...	...	...	...	...
Derby,	T. Barnes & Brothers,	Semi-bituminous,	Drift,	40	2	42	240	...	7	36,000	...	...	...	...	...	...
Decatur,	Decatur Coal Company,	do. do.	do.	47	5	52	245	...	9	53,566	...	...	...	...	...	...
Empire,	Empire Coal Company,	do. do.	do.	125	10	135	275	...	9	126,000	...	...	...	1	...	1
Eureka, No. 2,	Berwin, White & Co.,	do. do.	do.	...	...	...	...	...	...	...	...	...	...	2	...	2
Eureka, No. 3,	do. do.	do. do.	do.	...	...	...	...	...	...	...	...	...	...	1	...	1
Eureka, No. 5,	do. do.	do. do.	Slope,	505	40	545	279	...	82	439,028	...	1	...	...	...	1
Eureka, No. 6,	do. do.	do. do.	Drift,	...	...	...	...	...	...	...	...	...	...	...	...	...
Excelsior, No. 1,	Fisher, Miller & Co.,	do. do.	do.	...	...	...	275	...	...	...	...	...	...	...	...	...
Excelsior, No. 2,	do. do.	do. do.	do.	92	4	96	250	...	15	148,082	...	...	...	1	...	1
Excelsior, No. 3,	do. do.	do. do.	Slope,	80	7	87	300	...	3	...	...	...	...	...	...	...
Elizabeth,	Elizabeth Coal Company,	do. do.	Drift,	50	4	54	200	...	3	20,000	...	...	...	...	...	...
Franklin, Nos. 1 and 2,	Kittanning Coal Company,	do. do.	do.	140	10	150	185	...	20	45,766	...	5	...	1	...	6
Glenwood,	William Morris & Co.,	...	...	50	4	54	128	...	10	32,066	...	...	...	...	...	...
Grassflat, No. 9,	Clearfield Bituminous Coal Co.,	Semi-bituminous,	Drift,	148	31	179	260	...	12	77,140	...	...	...	1	...	1
Grassflat, Nos. 10 and 11,	do. do. do.	do. do.	do.	...	...	...	...	...	...	...	...	...	...	...	...	...
Gazzam,	do. do. do.	do. do.	do.	109	27	136	131	...	6	130,658	...	...	...	...	...	...
Goss Run,	Berwin, White & Co.,	do. do.	do.	...	...	...	...	...	...	...	...	...	...	...	...	...
Hawk's Run,	Jones & Mull,	do. do.	do.	28	2	30	120	...	3	12,000	...	...	...	...	...	...
Harrison,	D. Lang & Co.,	do. do.	do.	20	2	22	80	...	2	5,524	...	...	...	...	...	...
	Whitehead & Co.,	...	...	...	...	...	...	...	...	57,888	...	...	...	...	...	...

Karthaus,	Berwin, White & Co.,	Semi-bituminous,	Drift,	80	8	88	75	. . .	6	. . .	8	24,000	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Kyler Mine,	R. C. Fishburn,	do.	do.	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Lorraine,	Reakirt Brothers,	do.	do.	26	1	27	180	. . .	1	. . .	. . .	20,291	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Logan Ridge,	H. J. Smith & Co.,	do.	do.	30	2	32	216	. . .	3	. . .	. . .	33,600	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Logan,	H. Liveright & Co.,	do.	do.	78	4	82	268	. . .	10	. . .	. . .	78,768	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Laurel Run, Nos. 1 and 2,	Nuttall, Bacon & Co.,	do.	do.	64	5	69	278	. . .	11	. . .	. . .	70,000	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Lancashire, Nos. 1 and 2,	T. Barnes & Brothers,	do.	do.	114	7	121	192	. . .	12	. . .	. . .	96,000	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Lueder Slope,	A. B. & J. W. Leuder,	do.	Slope,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Morrisdale, Nos. 8, 10, 11, 12, 13, 14, and 15,	R. B. Wigton & Sons,	do.	Drift,	185	12	197	201	. . .	29	152,113	. . .	. . .	. . .	1	. . .	1	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1
Mapleton,	Berwin, White & Co.,	do.	do.	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Moshannon,	Moshannon Coal Company,	do.	do.	47	6	54	285	. . .	9	56,736	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Ocean, Nos. 1, 2, and 3,	Berwin, White & Co.,	do.	do.	. . .	. . .	. . .	. . .	. . .	. . .	57,388	. . .	. . .	1	. . .	. . .	1	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	2
Phœnix,	John H. Orvis & Co.,	. . .	. . .	36	6	42	256	. . .	6	29,795	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Penn,	Reakirt Brothers,	Semi-bituminous,	Drift,	24	2	26	254	. . .	2	22,754	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Pacific, Nos. 1 and 2,	Berwin, White & Co.,	do.	do.	. . .	. . .	. . .	. . .	. . .	. . .	185,606	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Reading,	H. Liveright & Co.,	do.	do.	20	2	22	168	. . .	3	12,550	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Rothrock,	R. B. Wigton & Sons,	do.	do.	50	7	57	87	. . .	3	11,917	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sterling, Nos. 1 and 2,	Robert H. Bowel & Co.,	do.	do.	350	20	370	311	. . .	40	398,090	. . .	. . .	1	. . .	2	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	3
Sterling colliery, No. 2,	do.	do.	do.	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sugar Camp, No. 1, 3, and 8,	Berwin, White & Co.,	. . .	. . .	140	10	150	85	. . .	. . .	36,000	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Somerville,	Lykens Valley Coal Company,	Bituminous,	Drift,	160	55	215	153	295	20	67,700	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Tunnel Mines, Nos. 1, 2, 3, and 4,	J. L. Somerville & Co.,	do.	do.	58	18	76	257	. . .	7	71,522	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Victor, Nos. 1, 2, and 3,	Clearfield Bituminous Coal Co.,	Semi-bituminous,	do.	158	36	194	260	. . .	11	203,933	. . .	. . .	1	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1
Vulcan,	Victor Coal Company,	do.	do.	165	13	178	119	. . .	10	134,938	. . .	. . .	7	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	7
Webster, No. 1,	R. B. Wigton & Sons,	do.	do.	56	4	60	140	. . .	6	18,872	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Webster, No. 2,	Webster Coal Company, (Lim.,)	do.	do.	60	4	64	234	. . .	8	57,401	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
West Moshannon,	Houtzdale Coal Co., (Limited,)	do.	do.	155	8	163	222	. . .	10	125,000	. . .	. . .	1	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1
	Moshannon Coal Company,	do.	do.	113	9	122	153	. . .	8	67,498	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Grand totals,				5,324	551	5,875	9,393	301	354	3,857,803	. . .	. . .	20	. . .	13	1	34											

TABLE III.—*A statement showing the method of ventilation, amount of air discharged, number of openings and headings, and size of inlets and outlets in the respective collieries of the Eighth Bituminous Mine District.*

NAME OF COLLIERY.	How ventilated.	Diameter of fan in feet.	Size of furnace.	Amount of air discharged per minute.	Number of openings.	Number of headings.	Inlet—size of—square feet.	Outlet—size of—square feet.
Atlantic,	Furnace,		6′ x 6′	9,240	2	6	42	35
Ashland,	Natural,			7,200	2	2	48	36
Atalanta,	Natural,			3,200	3	3	33	20
Black Diamond,	Natural,			6,300	2	4	36	25
Columbia, Nos. 1 and 2,	Furnace,		5′ x 6′	12,000	2	3	36	28
Coaldale, No. 3,	Furnace,		4′ x 5′	8,200	2	6	40	25
Coaldale, No. 4,	Furnace,		5′ x 5′	9,240	2	4	42	27
Coaldale, No. 5,	Natural,			5,040	2	3	48	30
Colorado,	Furnace,		6′ x 7′	10,440	2	4	36	36
Cataract,	Furnace,		6′ x 6′	9,200	2	5	42	36
Central,	Natural,			3,600	2	3	36	22
Drane,	Furnace,		4′ x 5′	10,000	2	4	50	30
Derby,	Natural,			6,500	2	3	30	25
Decatur,	Furnace,		3′ 3″ x 5′ 2″	15,000	2	3	40	34
Empire,	Furnace,		4′ x 6′	16,000	2	5	42	40
Eureka, No. 2,	Furnace,		6′ x 8′	16,204	2	6	70	60
Eureka, No. 3,	Natural,			7,008	2	2	42	48
Eureka, No. 5,	Furnace,		6′ x 7′	9,824	3	4	40	36
Excelsior, No. 1,	Furnace,		6′ x 6′	14,040	2	5	42	30
Excelsior, No. 2,	Natural,			9,000	2	2	40	36
Excelsior, No. 3,	Fan,	6		10,220	2	4	108	30
Elizabeth,	Natural,			2,400	2	3	36	25
Franklin,	Furnace,		6′ x 7′	15,300	2	4	50	36
Glenwood,	Furnace,		6′ x 6′	9,135	2	4	120	40
Grass Flat, No. 9,	Furnace,		6′ x 7′	24,000	2	3	112	38
Grass Flat, No. 10,	Furnace,		6′ x 7′	33,000	2	4	112	38
Grass Flat, No. 11,	Furnace,		6′ x 7′	25,000	2	5	112	38
Gazzam,	Furnace,		6′ x 7′	17,766	2	4	84	36
Goss Run,	Natural,				2		60	
Hawk's Run,	Natural,			5,400	2	2	30	22
Karthaus,	Furnace,		4′ x 5′	7,790	2	3	34	40
Loraine,	Natural,			5,000	2	1	36	20
Logan Ridge,	Furnace,		4′ x 5′	4,440	2	2	38	25
Logan,	Furnace,		4′ x 5′	15,010	2	4	40	28
Laurel Run, No. 1,	Furnace,		3′ x 4′	7,500	2	3	38	16
Laurel Run, No. 2,	Furnace,		4′ x 5′	12,760	2	2	40	30
Lancashire, No. 1,	Furnace,		5′ x 6′	9,980	2	4	36	25
Lancashire, No. 2,	Furnace,		5′ x 6′	11,700	2	5	44	30
Morrisdale, Nos. 8 and 10,	Furnace,		6′ x 6′	6,096	4	5	56	48
Morrisdale, Nos. 11, 12, and 13,	Furnace,		5′ x 6′		3	7	40	48
Morrisdale, Nos. 14 and 15,	Furnace,		6′ x 6′	16,416	4	6	50	40
Mapleton,	Natural,			6,576	2	4	36	25
Moshannon,	Natural,			5,797	2	2	56	44
Ocean, No. 1,	Furnace,		6′ x 6′	7,700	2	4	42	36
Ocean, No. 2,	Furnace,		6′ x 5′	8,450	2	3	154	36
Ocean, No. 3,	Furnace,		5′ x 6′	8,900	2	4	36	25
Phœnix,	Furnace,		4′ x 5′	4,720	2		32	20
Penn,	Furnace,		3′ x 4′	4,275	2		36	22
Pardee,	Exhaust steam,			7,920	2	3	42	30
Pacific, No. 1,	Furnace,		4′ x 5′	8,000	2	4	40	22
Pacific, No. 2,	Furnace,		5′ x 4′	9,660	2	5	45	20
Reading,	Natural,			3,778	2		30	16
Rothrock,	Furnace,		6′ x 5′	12,144	1	3	48	28
Sterling, No. 1,	Furnace,		3′ 4″ x 7′	19,608	4	8	80	95
Sterling, No. 2,	Furnace,		3′ 6″ x 6′					
Sterling, No. 2,	Furnace,		5′ x 5′	18,400	2		40	30
Sugar Camp, No. 1,	Furnace,		5′ x 6′	21,000	2	4	45	32
Sugar Camp, Nos. 2, 3, and 8,	Furnace,		5′ x 6′	23,070	2	5	42	30
Somerville,	Natural,			12,000	1		36	38
Tunnel Mines, Nos. 1 and 2,	Furnace,		6′ x 7′	12,000	2	4	182	39
Tunnel Mines, Nos. 3 and 4,	Furnace,		6′ x 7′	21,000	2	3	182	39
Victor, No. 1,	Furnace,		4′ x 5′	8,950	2	4	48	32
Victor, No. 2,	Furnace,		4′ x 5′	8,055	2	3	45	25
Victor, No. 3,	Furnace,		3′ x 4′	Idle.	2	4	38	22
Vulcan,	Exhaust steam,			7,008	2	3	48	20
Webster, No. 1,	Furnace,		6′ x 6′	15,900	2		38	22
Webster, No. 2,	Furnace,		4′ x 5′	6,650	2	3	40	36
West Moshannon,	Furnace,		5′ x 6′	21,600	2	4	42	36

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JANUARY.						FEBRUARY.						MARCH.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Atlantic,																		
Ashland,																		
Atalanta, No. 2,																		
Black Diamond,																		
Columbia, No. 1,																		
Columbia, No. 2,																		
Colorado,																		
Coaldale, No. 3,																		
Coaldale, No. 4,																		
Coaldale, No. 5,																		
Cataract,																		
Central,																		
Drane,																		
Derby,																		
Decatur,																		
Empire,																		
Eureka, No. 2,																		
Eureka, No. 3,																		
Eureka, No. 5,																		
Eureka, No. 6,																		
Excelsior, No. 1,																		
Excelsior, No. 2,																		
Excelsior, No. 3,																		
Elizabeth,																		
Franklin, No. 1,																		
Franklin, No. 2,																		
Glenwood,																		
Grass Flat, No. 9,																		
Grass Flat, No. 10,																		
Grass Flat, No. 11,																		
Gazzam,																		

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

Name of Colliery.	January.						February.						March.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Goss Run,																		
Hawk's Run,																		
Karthaus,																		
Loraine,																		
Logan Ridge,																		
Logan,																		
Laurel Run, No. 1,																		
Laurel Run, No. 2,																		
Lancashire, No. 1,																		
Lancashire, No. 2,																		
Morrisdale, No. 8,																		
Morrisdale, No. 10,																		
Morrisdale, No. 11,																		
Morrisdale, No. 12,																		
Morrisdale, No. 13,																		
Morrisdale, No. 14,																		
Morrisdale, No. 15,																		
Mapleton,																		
Moshannon,																		
Ocean, No. 1,																		
Ocean, No. 2,																		
Phœnix,																		
Penn,																		
Pardee,																		
Pacific, No. 1,																		
Pacific, No. 2,																		
Reading,																		
Rothrock,																		
Sterling, No. 1,																		
Sterling, No. 2,																		
Sterling Colliery, No. 2,																		

Sugar Camp, No. 1,
Sugar Camp, No. 3,
Sugar Camp, No. 8,
Somerville,
Tunnel Mine, No. 1,
Tunnel Mine, No. 2,
Tunnel Mine, No. 3,
Tunnel Mine, No. 4,
Victor, No. 1,
Victor, No. 2,
Victor, No. 3,
Vulcan,
Webster, No. 1,
Webster, No. 2,
West Moshannon,

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

Name of Colliery.	April.					May.					June.				
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Atlantic,																		
Ashland,																		
Atalanta, No. 2,																		
Black Diamond,																		
Columbia, No. 1,																		
Columbia, No. 2,																		
Colorado,																		
Coaldale, No. 3,																		
Coaldale, No. 4,																		
Coaldale, No. 5,																		
Cataract,																		
Central,																		
Drane,																		
Derby,																		
Decatur,																		
Empire,																		
Eureka, No. 2,																		
Eureka, No. 3,																		
Eureka, No. 4,																		
Eureka, No. 5,																		
Eureka, No. 6,																		
Excelsior, No. 1,																		
Excelsior, No. 2,																		
Excelsior, No. 3,																		
Elizabeth,																		
Franklin, No. 1,																		
Franklin, No. 2,																		
Glenwood,																		
Grass Flat, No. 9,																		
Grass Flat, No. 10,																		
Grass Flat, No. 11,																		

Gazzam,
Goss Run,
Hawk's Run,
Karthaus,
Loraine,
Logan Ridge,
Logan,
Laurel Run, No. 1,
Laurel Run, No. 2,
Lancashire, No. 1,
Lancashire, No. 2,
Morrisdale, No. 8,
Morrisdale, No. 10,
Morrisdale, No. 11,
Morrisdale, No. 12,
Morrisdale, No. 13,
Morrisdale, No. 14,
Morrisdale, No. 15,
Mapleton,
Moshannon,
Ocean, No. 1,
Ocean, No. 2,
Phœnix,
Penn,
Pardee,
Pacific, No. 1,
Pacific, No. 2,
Reading,
Rothrock,
Sterling, No. 1,
Sterling, No. 2,
Sterling Colliery, No. 2,
Sugar Camp, No. 1,
Sugar Camp, No. 3,
Sugar Camp, No. 8,
Somerville,
Tunnel Mine, No. 1,
Tunnel Mine, No. 2,
Tunnel Mine, No. 3,
Victor, No. 1,
Victor, No. 2,
Victor, No. 3,
Vulcan,
Webster, No. 1,
Webster, No. 2,
West Moshannon,

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	JULY.						AUGUST.						SEPTEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Atlantic,	160	7,680	60	2,970	424	14,840	200	9,600	50	2,475	299	10,465	192	9,216	118	4,130	439	12,292
Ashland,	140	6,860	110	5,280	215	7,740	160	7,840	130	6,240	220	7,920	170	8,330	135	3,340	215	8,740
Atalanta, No. 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Black Diamond,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Columbia, No. 1,	250	5,000	120	4,320	200	8,000	300	6,000	100	5,000	300	12,000	300	6,000	100	5,000	200	8,000
Columbia, No. 2,	100	4,200	100	4,000	150	6,000	100	4,200	100	4,000	150	6,000	106	4,200	100	4,000	180	6,000
Colorado,	270	9,720	170	6,120	280	10,080	280	10,080	180	6,480	290	10,440	270	9,720	170	6,120	280	10,080
Coaldale, No. 3,	180	7,200	160	5,760	160	8,000	195	7,800	170	7,120	175	8,750	180	7,560	100	6,000	160	6,400
Coaldale, No. 4,	170	7,140	95	5,700	155	6,200	156	6,552	70	4,200	170	6,800	200	8,400	120	7,200	180	7,200
Coaldale, No. 5,	160	5,440	120	4,080	175	5,955	185	6,660	150	6,000	330	7,425	220	7,920	275	7,425	400	8,100
Cataract,	190	6,840	160	6,400	320	7,200	. . .	. . . .	. . .	. . . .	. . .	. . . .	180	7,560	100	6,000	160	6,400
Central,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Drane,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Derby,	130	4,680	150	4,200	170	6,120	125	4,500	110	3,960	145	5,220	166	4,980	50	2,000	240	6,000
Decatur,	200	8,400	195	7,020	400	11,200	195	8,190	170	6,120	380	10,640	. . .	. . . .	. . .	. . . .	. . .	. . . .
Empire,	365	15,330	295	11,800	390	15,600	375	15,750	290	11,600	398	15,920	350	14,700	255	10,200	380	15,200
Eureka, No. 2,	390	17,568	210	9,450	340	16,605	400	17,967	200	10,530	360	17,514	360	16,721	170	9,220	310	15,300
Eureka, No. 3,	120	6,552	90	5,080	110	7,008	130	6,972	110	5,840	120	7,448	100	5,754	80	4,680	110	7,008
Eureka, No. 5,	115	4,730	100	4,200	130	5,460	110	6,132	90	5,080	100	6,576	90	5,334	70	4,280	90	5,995
Eureka, No. 6,	. . .	. . . .	. . .	. . . .	. . .	. . . .	130	6,972	110	5,840	120	7,448	80	4,914	60	3,720	100	6,574
Excelsior, No. 1,	340	16,660	. . .	. . . .	485	17,460	350	17,150	236	10,620	480	17,280	380	17,568	190	10,080	320	15,750
Excelsior, No. 2,	350	17,150	200	9,800	510	18,360	. . .	. . . .	. . .	. . . .	. . .	. . . .	370	16,753	180	9,657	330	16,204
Excelsior, No. 3,	. . .	. . . .	. . .	. . . .	. . .	. . . .	370	18,130	300	12,600	540	19,440	252	12,096	132	5,930	251	12,048
Elizabeth,	140	5,880	50	2,400	300	7,500	135	5,670	50	2,400	280	7,000	50	3,150	30	2,160	140	3,360
Franklin, No. 1,	360	10,800	400	19,200	520	31,200	375	11,250	170	5,440	550	33,000	480	31,680	. . .	. . . .	700	29,400
Franklin, No. 2,	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .	. . .	. . . .
Glenwood,	120	4,800	86	3,870	119	4,760	124	4,960	95	4,275	123	4,920	127	5,080	92	4,140	125	5,000
Grass Flat, No. 9,	175	18,200	250	15,000	375	22,500	190	19,760	200	12,000	390	23,400	190	19,760	300	18,000	460	27,600
Grass Flat, No. 10,	230	23,920	250	12,000	560	33,600	170	17,680	180	10,800	550	23,000	305	31,720	305	18,300	660	39,600
Grass Flat, No. 11,	200	20,800	250	15,000	410	24,600	240	24,960	250	15,000	550	23,000	275	28,600	250	15,000	550	33,000

Gazzam,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Goss Run,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hawk's Run,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Karthaus,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Loraine,	155	6,200	70	2,800	275	5,500	140	5,600	60	2,400	240	4,800	170	6,120	145	5,360	330	6,270
Logan Ridge,	170	6,120	130	4,680	125	4,625	175	6,200	150	5,400	130	4,810	160	5,760	140	5,180	220	4,180
Logan,	190	7,320	120	5,040	240	8,640	185	7,770	110	4,400	300	7,500	180	6,440	150	5,550	340	6,460
Laurel Run, No. 1,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Laurel Run, No. 2,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lancashire, No. 1,	250	9,000	260	9,360	240	11,360	290	9,360	200	8,000	250	12,250	290	9,360	95	4,460	250	12,250
Lancashire, No. 2,	250	11,000	85	4,250	360	9,000	260	10,300	95	4,460	330	9,500	260	10,300	200	7,200	310	12,400
Morrisdale, No. 8,	251	12,448	132	5,940	231	14,784	128	6,144	...	...	94	6,016	410	19,680	182	7,990	307	19,648
Morrisdale, No. 10,	246	12,808	130	5,850	244	11,712	242	11,616	130	5,850	248	11,160	...	...	...	...	...	...
Morrisdale, No. 11,	252	12,696	142	5,680	251	12,048	248	11,904	102	4,590	243	11,664	...	...	...	...	...	...
Morrisdale, No. 12,	412	19,776	132	5,930	313	20,032	410	19,670	136	6,120	311	19,904	...	...	...	...	...	...
Morrisdale, No. 13,	308	19,712	136	6,120	412	19,776	414	19,874	133	5,895	310	19,840	...	...	...	...	...	...
Morrisdale, No. 14,	408	19,584	135	6,075	312	19,968	408	19,584	130	5,850	313	20,032	406	19,488	184	8,080	304	19,456
Morrisdale, No. 15,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mapleton,	140	7,926	100	7,776	140	8,640	120	8,640	80	7,092	130	7,968	110	7,920	80	4,212	120	7,488
Moshannon,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ocean, No. 1,	150	5,250	42	2,541	190	6,650	150	5,250	40	2,420	170	5,950	105	7,560	70	3,852	100	7,008
Ocean, No. 2,	80	2,800	40	2,420	205	8,175	140	4,960	48	2,160	219	7,884	145	6,162	145	5,510	219	7,665
Phœnix,	120	4,680	40	2,240	200	4,680	115	4,485	50	1,950	210	5,040	150	6,370	143	5,434	229	7,515
Penn,	135	5,400	108	4,320	240	3,600	145	5,800	64	2,560	220	4,400	151	6,417	120	4,560	215	7,525
Pardee,	150	7,200	180	4,500	135	8,640	115	5,520	160	4,000	120	7,680	150	7,200	135	5,130	221	7,730
Pacific, No. 1,	200	7,600	130	5,460	400	10,000	200	7,600	130	5,460	400	10,000	...	...	...	...	...	...
Pacific, No. 2,	190	8,640	120	5,040	350	9,450	205	8,380	115	4,830	340	8,500	...	...	...	...	...	...
Reading,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rothrock,	341	16,468	170	7,650	260	16,640	332	15,936	160	7,200	250	16,000	...	...	...	...	...	...
Sterling, No. 1,	130	11,375	135	5,400	270	22,140	140	12,250	155	6,200	250	21,500	190	8,550	90	4,500	230	8,740
Sterling, No. 2,	210	8,400	105	5,250	330	12,540	185	7,400	120	6,000	310	11,780	192	12,480	185	7,400	227	25,197
Sterling Colliery, No. 2,	240	2,880	85	2,720	47	18,800	290	3,480	100	3,200	390	15,600	330	3,960	150	5,100	460	18,400
Sugar Camp, No. 1,	450	16,200	250	9,000	570	20,520	500	18,000	270	9,720	620	22,320	420	15,120	160	5,560	530	19,080
Sugar Camp, No. 3,	...	...	...	...	...	...	...	...	...	...	...	...	388	21,000	375	18,000	328	21,000
Sugar Camp, No. 8,	300	10,800	...	...	450	16,200	350	12,600	...	...	484	17,424	...	...	...	...	...	...
Somerville,	...	...	...	...	...	...	...	...	...	...	...	...	160	6,720	80	3,360	280	7,560
Tunnel Mine, No. 1,	150	16,500	150	9,000	350	21,000	160	17,600	190	11,400	360	21,600	210	23,100	190	11,400	450	27,000
Tunnel Mine, No. 2,	100	11,200	140	8,400	230	11,960	...	...	...	...	...	...	...	...	...	...	...	...
Tunnel Mine, No. 3,	...	...	...	...	...	...	200	22,000	170	10,200	400	24,000	...	...	...	...	...	...
Tunnel Mine, No. 4,	110	12,320	150	9,000	250	13,000	170	18,700	180	10,800	350	21,000	150	16,500	160	9,600	400	24,000
Victor, No. 1,	264	13,464	192	11,520	252	12,600	267	13,617	193	11,580	256	12,800	264	13,464	190	11,400	248	12,400
Victor, No. 2,	235	10,340	145	8,700	231	10,395	237	10,428	147	8,820	231	10,395	230	10,350	140	8,400	225	10,125
Victor, No. 3,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vulcan,	312	14,976	218	9,810	233	14,912	310	14,880	220	9,900	230	14,720	...	...	...	...	...	...
Webster, No. 1,	...	...	...	...	...	...	185	6,660	120	4,800	200	6,000	...	...	...	...	...	...
Webster, No. 2,	133	6,517	120	5,060	300	7,500	170	7,140	140	5,880	330	9,240	150	7,350	130	5,830	270	5,830
West Moshannon,	...	...	...	...	...	...	195	7,020	60	2,400	300	9,000	180	7,200	110	5,280	200	9,600

TABLE III.—VENTILATION OF COLLIERIES—*Continued.*

NAME OF COLLIERY.	OCTOBER.						NOVEMBER.						DECEMBER.					
	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number Of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.	Velocity of air current per minute at inlet.	Number of cubic feet passing in per minute at inlet.	Velocity of air current at or near face of heading.	Number of cubic feet per minute passing at or near face of heading.	Velocity of air current per minute at outlet.	Number of cubic feet per minute passing out.
Atlantic,	225	11,025	125	3,750	505	17,675	220	9,240	119	3,618	239	12,240	219	9,098	123	3,690	224	10,978
Ashland,	125	5,265	195	5,040	200	7,200	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Atalanta, No. 2,	117	3,510	30	2,100	200	3,200	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Black Diamond,	200	4,500	60	3,000	350	6,300	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Columbia, No. 1,	250	5,000	150	7,500	300	12,000	300	6,300	130	6,630	300	12,000	350	7,000	100	5,000	250	10,000
Columbia, No. 2,	200	8,400	100	4,000	200	8,000	100	4,200	150	6,000	150	6,000	100	4,200	150	6,000	200	8,000
Colorado,	270	9,720	170	6,120	280	10,080	280	10,030	180	6,420	290	10,440	270	9,720	170	6,120	280	10,080
Coaldale, No. 3,	220	9,240	120	7,200	205	8,200	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Coaldale, No. 4,	170	5,270	80	3,360	150	8,100	220	9,240	100	6,000	200	8,000	220	92,400	120	4,800	205	8,200
Coaldale, No. 5,	69	6,072	96	5,760	112	5,040	145	10,585	157	10,048	162	10,368	164	11,972	170	10,880	168	10,752
Cataract,	230	8,290	140	5,600	490	9,800	92	3,680	75	3,300	230	9,200	300	10,800	260	10,400	310	10,850
Central,	80	3,200	70	3,080	120	3,600	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Drane,	260	9,460	135	6,075	400	10,000	277	9,936	175	7,875	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Derby,	137	4,932	100	4,000	260	6,500	145	7,830	40	1,600	300	7,500	105	4,500	. . .	. . .	145	3,625
Decatur,	325	9,750	200	11,000	350	14,000	300	9,000	150	8,250	275	15,000	350	10,500	200	11,000	325	13,000
Empire,	350	14,700	247	9,880	380	15,200	390	16,330	340	13,600	400	16,000	360	15,120	300	12,000	390	15,600
Eureka, No. 2,	390	17,568	190	10,030	330	16,204	390	17,568	200	10,530	360	17,514	400	17,967	210	10,935	390	18,823
Eureka, No. 3,	90	5,334	70	4,280	110	7,003	50	3,696	40	3,120	80	5,616	60	4,116	50	3,520	80	5,616
Eureka, No. 5,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Eureka, No. 6,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Excelsior, No. 1,	307	15,013	80	4,320	430	15,480	280	13,720	. . .	. . .	390	14,040	345	17,150	. . .	. . .	490	17,640
Excelsior, No. 2,	280	12,600	100	4,000	370	13,320	275	12,375	. . .	. . .	370	12,950	120	6,600	. . .	. . .	150	5,250
Excelsior, No. 3,	. . .	. . .	. . .	. . .	. . .	. . .	100	7,800	120	6,600	260	10,920	247	10,950	. . .	. . .	282	13,009
Elizabeth,	40	2,160	20	1,440	60	2,400	37	2,000	20	1,500	70	2,800	158	8,532	80	4,800	170	6,300
Franklin, No. 1,	480	31,680	200	8,000	700	29,400	560	40,680	160	6,400	340	15,300	220	7,920	175	7,000	280	15,120
Franklin, No. 2,	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	190	6,840	85	3,825	338	14,210
Glenwood,	207	8,280	169	7,605	203	9,135	134	6,968	120	6,000	200	8,000	138	7,176	123	5,150	207	8,280
Grass Flat, No. 9,	175	18,200	210	12,600	400	24,000	192	19,968	275	16,500	455	27,300	. . .	. . .	. . .	. . .	. . .	. . .
Grass Flat, No. 10,	200	12,000	185	11,100	550	33,000	215	22,360	230	13,800	705	42,300	240	24,960	230	13,800	780	46,300
Grass Flat, No. 11,	190	19,760	130	10,800	420	25,200	250	26,000	345	20,700	500	30,000	205	21,320	390	23,400	510	30,600

Gazzam,	240	12,960	80	3,520	480	12,960	329	17,766	93	4,092	660	17,820	240	24,960	230	13,800	780	46,800
Goss Run,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hawk's Run,	190	5,510	130	5,460	309	5,400	197	5,910	141	5,910	328	5,910	...	...	...	...	...	...
Karthaus,	160	7,120	70	319	170	7,790	200	8,800	90	4,230	260	12,220	130	5,720	100	4,700	360	16,920
Loraine,	160	6,400	85	3,075	250	5,000	150	5,200	100	4,000	270	5,400	155	6,200	105	4,200	170	3,400
Logan Ridge,	150	5,400	125	4,635	120	4,440	130	4,680	100	3,700	110	4,070	160	5,760	120	4,440	150	5,520
Logan,	115	9,135	130	4,480	425	15,015	165	12,915	145	5,920	355	15,010	...	...	...	...	...	...
Laurel Run, No. 1,	200	6,000	110	5,500	240	14,040	200	6,000	125	6,250	250	7,500	200	6,000	100	5,000	240	7,200
Laurel Run, No. 2,	285	10,260	112	5,600	220	12,760	...	...	...	...	...	...	...	...	...	...	...	...
Lancashire, No. 1,	210	7,760	150	4,800	220	9,930	220	7,960	130	3,860	220	8,470	280	7,960	...	...	295	9,735
Lancashire, No. 2,	200	10,500	180	6,480	300	12,000	230	9,900	200	7,700	260	11,700	240	9,600	165	4,050	250	10,875
Morrisdale, No. 8,	120	6,000	95	4,275	127	6,096	...	...	...	...	...	...	...	...	...	...	...	...
Morrisdale, No. 10,	Not	work	ing.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Morrisdale, No. 11,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Morrisdale, No. 12,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Morrisdale, No. 13,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Morrisdale, No. 14,	93	4,650	93	4,185	97	4,656	410	16,430	214	9,630	456	16,416	410	16,430	210	9,450	456	16,416
Morrisdale, No. 15,	113	5,650	80	3,600	112	3,584	415	14,940	250	11,250	332	14,940	240	12,700	120	5,400	223	12,700
Mapleton,	50	5,690	60	3,528	100	6,576	50	3,696	70	3,852	90	6,096	45	5,516	60	3,523	80	5,556
Moshannon,	180	6,120	170	5,420	187	5,797	...	...	...	...	...	...	170	5,780	160	5,120	177	5,387
Ocean, No. 1,	157	6,672	147	5,586	220	7,700	180	7,560	170	6,970	185	7,400	182	7,644	130	5,850	200	8,000
Ocean, No. 2,	161	6,842	150	5,700	335	8,225	50	2,000	115	440	239	11,240	52	2,080	116	4,524	221	10,830
Phœnix,	140	4,200	40	2,000	180	4,720	111	4,662	60	3,240	220	6,600	...	...	...	...	...	...
Penn,	130	5,200	90	3,600	285	4,275	150	6,000	95	3,800	150	6,750	130	5,200	110	4,400	230	3,450
Pardee,	170	8,160	200	5,800	130	8,580	195	9,360	50	3,750	120	7,920	243	11,664	...	...	256	9,230
Pacific, No. 1,	175	8,400	105	6,300	320	8,000	166	10,000	115	69,000	300	9,600	183	10,980	105	5,250	540	8,640
Pacific, No. 2,	192	9,266	95	6,175	300	10,500	179	10,000	130	7,800	230	9,660	...	...	...	...	...	...
Reading,	...	...	...	...	...	...	60	4,704	50	3,520	70	3,778	70	5,130	60	3,920	90	6,852
Rothrock,	248	12,400	263	11,835	253	12,144	303	15,150	334	15,030	420	15,120	320	14,440	290	9,700	380	14,400
Sterling, No. 1,	330	9,880	145	6,525	290	11,020	275	13,200	180	8,820	290	11,020	330	14,880	190	7,600	532	18,520
Sterling, No. 2,	152	1,584	165	7,425	160	18,400	209	19,646	185	8,695	258	19,608	201	18,894	230	9,200	276	21,976
Sterling Colliery, No. 2,	340	4,080	190	6,460	390	15,600	450	5,400	250	8,500	380	15,200	...	...	...	...	...	...
Sugar Camp, No. 1,	370	13,320	220	7,920	550	19,800	400	14,400	210	7,560	600	21,600	400	14,400	210	7,520	600	21,600
Sugar Camp, No. 3,	444	23,976	416	19,944	370	23,680	579	27,792	304	14,592	300	19,200	476	22,848	386	18,528	357	22,848
Sugar Camp, No. 8,	...	...	...	...	...	...	35	12,600	...	...	500	18,000	300	10,800	...	...	500	13,000
Somerville,	390	1,720	250	12,000	250	12,000	300	14,400	50	2,400	...	...	...	...	300	12,600	200	5,400
Tunnel Mine, No. 1,	150	16,500	150	9,000	350	21,000	160	17,600	155	9,300	400	24,000	200	22,000	240	14,400	468	28,080
Tunnel Mine, No. 2,	100	11,200	140	8,400	230	11,960	103	11,330	160	9,600	355	21,300	211	23,210	240	14,400	400	24,000
Tunnel Mine, No. 3,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tunnel Mine, No. 4,	180	19,800	175	10,500	415	24,900	170	18,700	200	12,000	350	21,000	180	19,800	200	12,000	380	22,000
Victor, No. 1,	186	9,486	125	7,500	179	8,950	185	9,435	125	7,500	180	9,000	146	7,446	113	6,780	126	6,300
Victor, No. 2,	182	8,190	113	6,780	179	8,055	181	8,145	115	6,900	175	7,875	125	5,625	90	5,400	112	5,040
Victor, No. 3,	...	...	...	...	...	...	220	13,200	215	12,900	230	10,350	146	7,446	113	6,780	127	6,350
Vulcan,	135	7,020	92	4,600	146	7,008	160	7,560	150	7,700	160	10,240	75	4,500	40	2,560	90	4,320
Webster, No. 1,	260	11,700	200	8,400	530	15,900	420	13,860	150	6,402	450	13,500	350	11,350	155	6,665	380	11,400
Webster, No. 2,	112	5,500	97	4,400	224	5,600	175	7,000	105	5,250	95	6,650	150	6,795	...	...	190	4,750
West Moshannon,	380	15,200	150	7,200	400	15,200	160	7,680	80	4,500	360	21,690	200	8,000	...	...	340	20,040

TABLE IV.—LIST OF ACCIDENTS *occurring in the mines of the Eighth Bituminous Coal District of Pennsylvania, for the year ending December 31, 1885.*

Date of accident.	NAME OF PERSON INJURED.	Age.	Married or single.	Number of orphans.	Name of Colliery.	Location—County.	Date of investigation.	Nature and Cause of Accident.
1885.								
Jan. 29	Thomas Wales,	24			Enreka, No. 3,	Clearfield,		Severely bruised by fall of coal.
Feb. 10	Jake Hoffner,	45			Frankliu,	do.		Collar-boue broken by fall of coal.
18	John Cotter,	34	Married,	1	Logan Ridge,	do.	Feb. 20	Killed by fall of coal.
5	James Goodwin,	31	Married,	4	Sterling, No. 1,	do.	7	Killed by fall of rock.
April 7	Claudius Johnson,				Victor, No. 2,	do.		Arm broken by fall of coal.
7	Austin Jacob,				do. do.	do.		Bruised leg by fall of coal.
9	John Brady,				Webster, No 2,	do.		Arm broken by fall of coal.
24	R. Boardman,				Victor, No. 3,	do.		Collar-bone brokeu by fall of coal.
June 5	Joseph Wade,				do. do.	do.		Severely hurt by fall of coal.
July 23	William Tyler,	30	Married,		Victor, No 2,	do.		Back hurt by fall of coal.
25	William Jones,	25	Married,		Morrisdale,	do.	July 27	Killed by fall of slate.
Aug. 1	James Kowatch,	30	Married,		Eureka, No. 2,	do.		Collar-bone broken by fall of coal.
1	John Maxwell,	48	Married,		do. do.	do.		Foot crushed by fall of coal.
17	John Hunter,	23	Married,		Victor, No. 2,	do.		Leg broken by fall of coal.
Sept. 15	Elias Anderson,	48	Married,	2	Sterling, No. 1,	do.	Sept. 16	Killed by fall of coal.
15	Charles Blankley,	13	Single,		Laurel Run, No. 1,	do.	16	Killed by trying to jump on wagons.
19	Jacob Childer,	24	Single,		Coaldale, No. 3,	do.	21	Killed by fall of rock.
19	Paul Childer,	22	Single,		do. do.	do	21	Killed by fall of rock.
22	James Forsythe,	30	Married,	1	Franklin,	do.	22	Drowned by breaking into old workings containing water.
22	James Meehan,	27	Married,	1	do.	do.	22	
22	Joseph Zamba,	25	Married,	1	do.	do.	22	
22	Christian Foulke,	20	Single,		do.	do.	22	
28	William Trimbath,	29	Married,	3	Ocean, No. 1,	do.	29	Killed by falling off his trip of loaded cars while coming out of mine.
29	Joseph Stornka,	30			Victor, No. 2,	do.		Head and shoulders hurt by fall of coal.
Oct. 13	Vincent Yestoll,	13	Single,		Black Diamond,	Centre,	Oct. 14	Killed by fall of rock.
Nov. 2	John Smith,	22	Married,	3	Excelsior, No. 1,	Clearfield,	Nov. 3	Killed by fall of coal.
10	John Lewis,	72	Married,		Sterling, No. 1,	do.		Leg broken by being caught between wagons while coupling.
11	William Fyfe,	25	Single,		Franklin,	do.	Nov. 12	Killed by fall of coal.
21	John Luther,	45	Married,		Cataract,	do.		Severely hurt by trying to jump on empty cars while going up plane.

Dec. 23	Gust Bergin, ...	25	Single, . . .	. .	Grass Flat, No. 10, ...	do.	. . . . .	Foot and leg bruised by fall of rock.
2	James Mowat, ...	60	Married, . . .	. .	Eureka, No. 3, ...	do.	. . . . .	Killed by fall of slate while setting up a prop.
8	David Silnston, ...	46	Married, . . .	. .	Ocean, No. 2, ...	do.	. . . . .	Leg broken by fall of coal.
15	Alexander Archibald, ...	24	Married, . . .	. .	Tunnel Mine, No. 2, . . .	Centre, ...	. . . . .	Thigh broken in two places by fall of coal.
22	John Jarret, ...	15	Single, . . .	. .	Empire Mine, ...	Clearfield, ...	. . . . .	Leg broken by fall of slate.

TABLE V.—*Showing the grand total of employés, horses, mules, engines, pumps, boilers, and powder employed, tons of coal mined and shipped, fatal and non-fatal accidents, &c., in the Eighth Bituminous Mine District, for the year ending December 31, 1885.*

NAMES OF COUNTIES AND PARTS OF COUNTIES IN THE DISTRICT.	Total number of men employed.	Total number of days worked	Total number of horses and mules employed.	Total number of engines and pumps employed.		Total number of boilers employed.	Total number of engines.	Total number of tons of coal produced.	Total number of coke ovens.	Total number of fatal accidents.	Total number of non-fatal accidents.	Total number of times air measurements were taken.
				Locomotives.	Pumps.							
Centre county,	759	1,449	53	1	....	....	1	462,843	295	1	2	.....
Clearfield, except Dubois and Bell's Gap railroad,	5,116	8,244	801	4	23	29	11	3,394,960	6	15	16	.....
Grand totals,	5,875	9,693	854	5	23	29	12	3,857,803	301	16	18	.....

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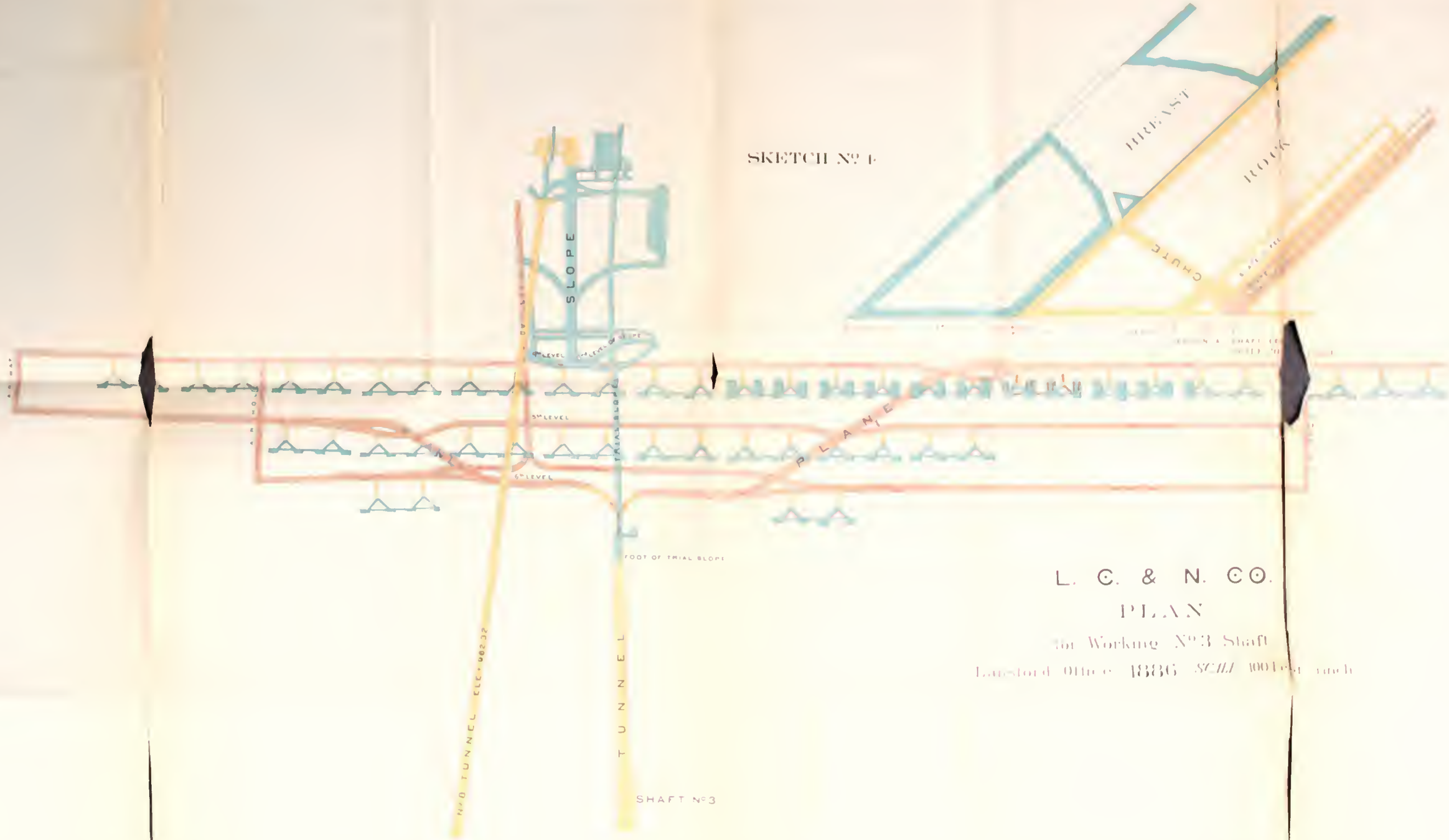
SKETCH № 1

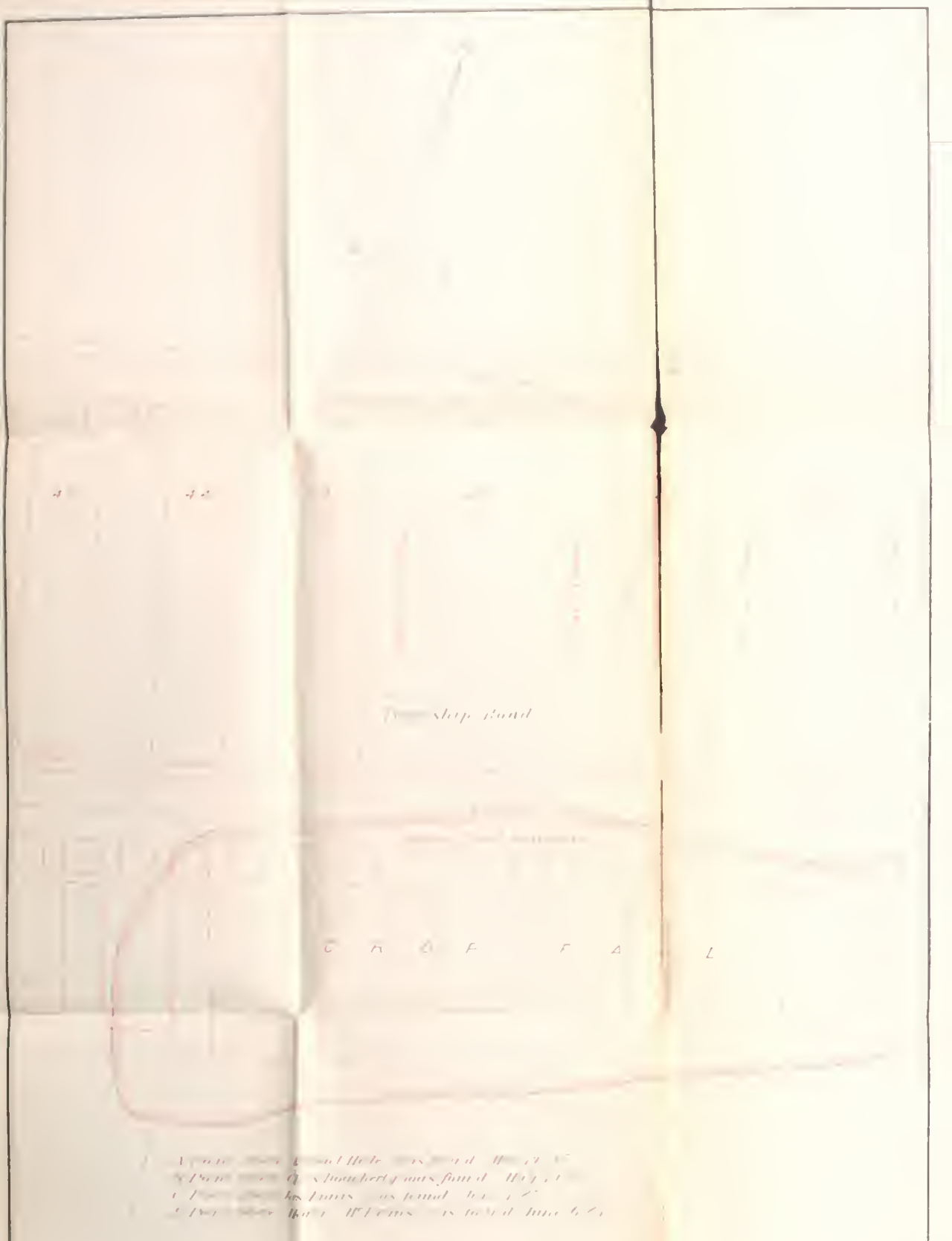


L. C. & N. CO.

PLAN

for Working № 3 Shaft

Lansford Office 1886 SCALE 100 Feet to an inch



SKETCH

SHOWING PORTION OF THE WORKING ON THE

MAMMOTH VEIN EAST GANGWAY FIRST LIFT

AT

NORTH ASHLAND COLLIERY.

MAP

OF

FRANKLIN MINE WORKS

Clearfield Co. Pa.

Examples of

WOODEN AND BRICK

OVERCASTS

and a

TIMBER DAM

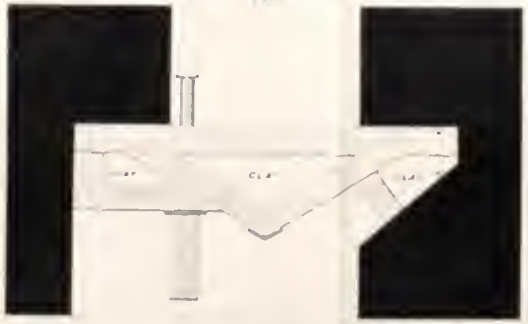
as built by the

Westmoreland Coal Compy

Scale Inch 1 Foot

DAM

BRICK OVERCAST



ROCK ELEV + 550 8
ROCK ELEV + 594 3
ROCK ELEV + 550 9
ROCK ELEV + 538 1
ROCK ELEV + 537 6
ROCK ELEV + 541
B A R N
N° LIFT
N° 2 LIFT
AIR SHAFT
N° 4 TUNNEL
ELEV. OF RAIL + 508
BUCK MOUNTAIN SEAM
N° 2 BREAKER
ELEV. OF ROOF + 272·3
ELEV. OF ROOF + 303
ELEV. OF ROOF + 312·1
ELEV. OF ROOF + 119·9
ELEV. OF ROOF + 124
ELEV. OF ROOF + 349·9
ELEV. OF ROOF + 382
ELEV. OF ROOF + 357
ELEV. OF ROOF + 385
ELEV. OF ROOF + 317
CAVE
ELEV. ON TOP OF CULM BANK + 697
ELEV. OF SURFACE AT BASE OF DR + 650
ELEV. OF ROOF UNDER THE CAVE + 388
BASE ROAD
WAGON
C U L M
B A N K
ELEV. OF SURFACE + 618
ELEV 594
HOUSE
ROCK
ELEV + 567·5
N° 2 SHAFT

SKETCH

SHOWING

RECENT CAVE IN WORKINGS.

OF THE

ROSS SEAM IN N° 1 SLOPE.

Susquehanna Coal Co.

Scale 100 ft to Inch Dec^r 15^th 1885.

A - WHERE MEN ARE KNOWN TO BE

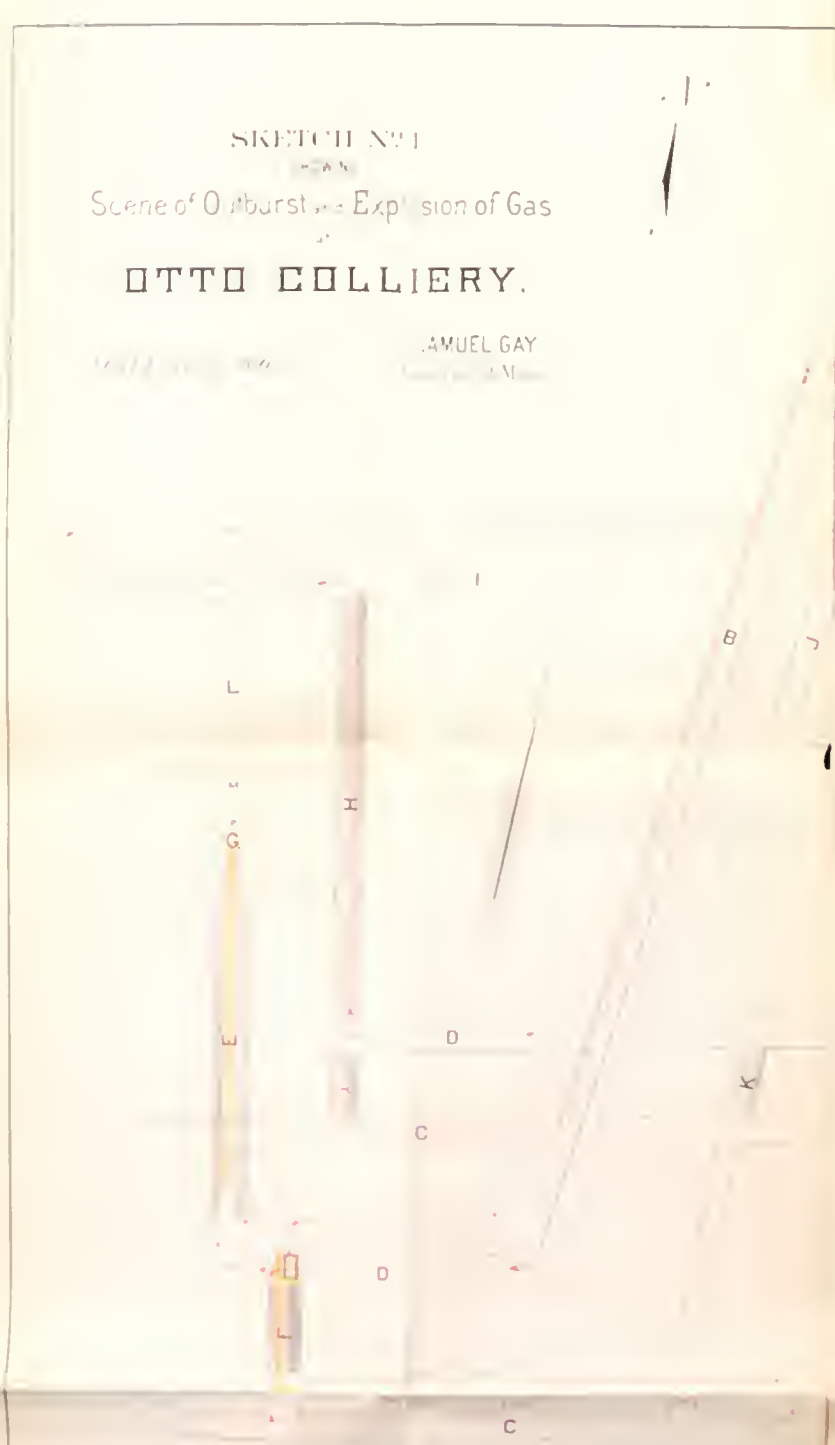
SKETCH N°1

PLAN

Scene of Outburst & Explosion of Gas

OTTO COLLIERY.

SAMUEL GAY



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A *Slope on Holmes Vein*

B *do. do. Primrose Vein*

CC *Gangways on Primrose Vein*

DD *do. do. Holmes Vein*

E *Tunnel from Holmes Vein to Mammoth Vein*

F *Tunnel from Holmes Vein to Primrose Vein*

G *Air way where outburst of Gas occurred*

H *Tunnel from Primrose Vein to Mammoth Vein*

H *Gangways on Mammoth Vein*

J *Airway on Holmes Vein*

K *Tunnel from Primrose Vein to Holmes Vein*

L *Proposed Airway to Mammoth Vein*

M *Face of Airway after the burst of Gas*

N *Ventilating Fan*

P *Face of airway before the burst of Gas*

Primrose Vein

Holmes Vein

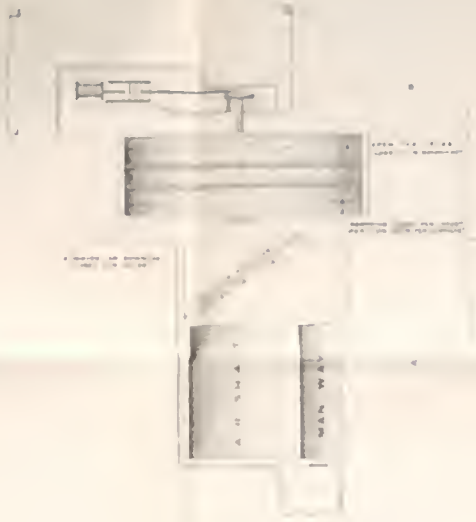
Mammoth Vein

Air Crossings

Pillars

Air Crossings

Doors and Stoppings



SHOWING METHOD

OF

USING FAN AS UPCAST & DOWNCAST

AS ARRANGED BY THE

CONNELLSVILLE COKE & IRON CO.